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Chest Wall Leiomyomas: A Case Report and Review of the Literature

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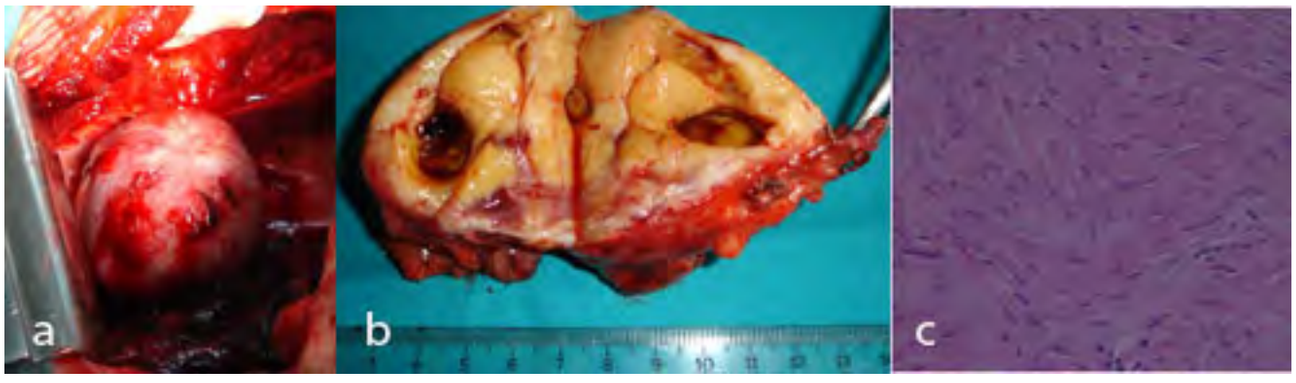

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E. **Letter to Editor**

Incidence and Predisposing Factors of Atrial Fibrillation After Coronary Artery Bypass Surgery

Koroner Arter Bypass Cerrahisi Sonrasında Atriyal Fibrilasyon Görülme Sıklığı ve Etki Eden Faktörler

Atrial Fibrillation and CABG

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Özet

Amaç: Koroner arter bypass cerrahisi yapılan hastalarda yeni gelişen ortaya çıkan atriyal fibrilasyon daha fazla postoperatif komplikasyonlar ile ilişkilidir. Bu çalışmada izole koroner arter bypass cerrahisi uyguladığımız hastalarda gelişen postoperatif atriyal fibrilasyonu ve en sık görülen sebeplerini saptamayı ve kontrol altına almayı amaçladık. Gereç ve Yöntem: Kliniğimize 2008 ve 2012 yılları arasında koroner arter bypass cerrahisi uyguladığımız tüm hastaların (n=149) verilerini retrospektif olarak inceledik. Olası predispozan risk faktörlerin arasından, yaş, vücut kitle indeksi, diabetes mellitus varlığı, postoperatif kreatinin değeri, ameliyat sonrası verilen eritrosit süspansiyonlarının sayısı, postoperatif ejeksiyon fraksiyonu ve distal baypas sayısını özellikle inceledikaraştırdık. Bulgular: Postoperatif atriyal fibrilasyon 149 hastanın 55' inde (%36.9) meydana geldi. İleri yaş ve postoperatif atriyal fibrilasyon arasında anlamlı bir korolesyon vardı (p<0.001). Toplam hastanede kalış süresi postoperatif atriyal fibrilasyon görülmeyen hastalarda 8.31±1.88 gün, postoperatif atriyal fibrilasyon görülenlerde 11.45±4.35 gün idi (p<0.001). Postoperatif atriyal fibrilasyon görülmeyen hastalarda ortalama yoğun bakımda kalış süresi 2.57±0.95 gün iken, postoperatif atriyal fibrilasyon görülenlerde 5.13±3.20 gün idi (p<0.001). Tartışma: Postoperatif atriyal fibrilasyona bağlı mortalite ve morbiditeyi azaltmak için risk altındaki hastaları tam olarak belirlemek ve gerekli önlemleri almak önemlidir. Bu çabalar gereksiz ilaç kullanımını ve buna bağlı yan etkileri engellerken, aynı zamanda yoğun bakımda kalış süresini kısaltarak sağlık harcamalarının miktarını da azaltmaya yardımcı olur.

Anahtar Kelimeler

Koroner Arter Bypass Cerrahisi; Atriyal Fibrilasyon; İleri Yaş

Abstract

Aim: In patients undergoing coronary artery bypass grafting (CABG), development of new-onset postoperative atrial fibrillation (POAF) is related with more postoperative complications. In this study we aim to detect and try to control the most common predictors of POAF among our patients who underwent solely CABG operation. Material and Method: We retrospectively examined retrospectively the data of all the patients (n=149) who had undergone CABG operation at our institution between 2008 and 2012. While evaluating the possible predisposing factors, we specifically investigated age, body mass index, diabetes mellitus, preoperative creatinine value, the number of postoperative erythrocyte suspension replacement, preoperative ejection fraction levels and the number of distal bypasses. Results: POAF occurred in 55 of 149 patients (36.9%). There was a significant correlation between advanced age and occurrence of POAF (p<0.001). Among the patients with no-POAF the total hospital stay was 8.31±1.88 days, compared to 11.45±4.35 days in the POAF group (p<0.001). In no-POAF group the mean postoperative intensive care unit (PICU) stay was 2.57±0.95 days, whereas in the POAF group the mean PICU stay was 5.13±3.20 days (p<0.001). Discusion: It is important to accurately identify patients who are at greater risk for POAF and to take the required precautions pre-, intra- and postoperatively in order to decrease the mortality and morbidity related to POAF. These efforts can also help to prevent unnecessary drug use and their adverse effects, shortens the length of PICU and hospital stay and decrease amount of health expenses.

Keywords

Coronary Artery Byapss Grafting; Atrial Fibrillation; Advanced Age

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Introduction

Atrial fibrillation is a common postoperative complication of cardiac operations and can be as frequent as 20-40 % after coronary artery by-pass grafting (CABG) or 38-64 % after valve operations [1]. Atrial fibrillation generally occurs in the first week of postoperative period, especially on the 2nd and 3rd days [2]. Risk factors that are associated with postoperative atrial fibrillation (POAF) include, Aatrial trauma due to cannulation, long aortic cross clamping time, acute atrial enlargement, atrial ischemia, postoperative electrolyte imbalance, pericarditis, epicardial inflammatory reaction, sick euthyroid syndrome, grafting of right coronary artery, increased postoperative sympathetic tone, increased levels of circulating catecholamines, advanced age, lack of postoperative beta blockade, hypertension and male sex are considered among the common culprits [1,3].

The underlying pathology in occurrence of POAF is multifactorial and is not yet well understoodthe specific causes remain unknown. Multiple re-entry waves arising due to dispersion ofduring the atrial refractory period is considered the electrophysiological mechanism of POAF but it is still remains unclear why some patients have an increased tendency to develop POAF [4]. Some authors have tried to explain this with an increased preoperative constitutional tendency to arrhythmias or the intraoperative atrial damage that is created by atrial incisions or perioperative ischemia [1,5].

It is possible to categorize the factors that play an important role in the development of AF as preoperative, intraoperative and postoperative. The most important preoperative factor is the patient's age. Male sex is also an important preoperative risk factor. Akazawa et al. reported a higher incidence of AF among males compared to females in all age groups [6]. The effects of ion channel expression and hormones on autonomic tone can be used to explain this difference. It is also reported a close relation between the aortic cross clamping time and POAF. It is thought to be due to prolonged atrial ischemia. The location of venous cannulation is also found to be related to POAF and it is suggested that bicaval cannulation avoiding an atrial incision can lower the rates of POAF [7]. Moreover, Postoperative postoperative pneumonia, chronic obstructive pulmonary disease and prolonged ventilation periods are also thought to beas important factors in the occurrence of POAF. Although, some studies failed to show the efficacy of preoperative beta blocker use on prevention of POAF, meta-analyses show that beta blockers lower the incidence of POAF and routine use of these agents are suggested by the American Heart Association [8-11]. Also it is reported in a meta-analysis of twelve clinical trials that preoperative use of statins can decrease incidence of POAF in post-CABG patients [12]. In this study we aim to detect and try to control the most common predictors of POAF based on our experience among our patients who underwent solely CABG operation.

Material and Method

Permission of this study was granted by the local ethics committee. The participants of the study were chosen among our patients who had undergone CABG operation at our institution between January, 2008 and May, 2012. The we excludexclusion chiriteriased the patients from the study were,ho had a prior AF or arrhythmia, hypo or hyperthyroidism history, redo cases, had undergone left ventricular aneurysm repair, emergent CABG operations and patients who have a severe valve disease. We examined retrospectively the data of all the patients (n=149) who matched our selection criteria in order to detect risk factors in the development of POAF.

Risk Factors

The variables assessed were: age ≥65 years; left ventricular ejection fraction (EF) ≤40; number of postoperative erythrocyte suspension replacement; preopeative creatinine level ≥ 1.4 mg/dL; DM; obesity: (defined by body mass index ≥ 30 kg/m2); and number of distal anastomosis >3.

Anesthesia and Operational Technique:

All of our patients operated under general anesthesia that was provided by intravenous narcotic anesthetic technique. Left internal mammary artery and saphenous venous grafts were prepared and used for revascularization. All the patients were operated under cardiopulmonary bypass. Aortic arterial, unicaval venous cannulation were applied and antegrad aortic cardioplegia cannula was placed. After aortic cross clamping, antegrad, hyperpotasemic blood cardiplegia and systemic hypothermia were applied for myocardial protection. Distal anastomoses were done under aortic cross clamping, after removal of aortic cross clamp proximal anastomoses were done under lateral clamp. After decannulation and completion of the operation the patients were transferred to postoperative intensive care unit (PICU).

All of the patients were extubated in the PICU on the day of the operation and were followed there for two days. ECG monitorization was done with standard D-II derivations in a 5 lead monitor. Electrolyte levels were also monitored closely and replaced if needed. After two days the patients were transferred to ward, pulse and blood pressure were obtained every four hours and when necessary. Daily ECG was performed in all patients. After detection of an arrhythmia, continuous, 12 derivation ECG monitoring was obtained.

Statistical Methods

To compare mean values of variables with normal distribution for two different groups t test, for more than two groups 'One way variant analysis' (One-way ANOVA), if a significant difference found between groups then post-hoc 'Tukey HSD' tests were used. If necessary (according to the number of subjects and controlling homogenicity) non-parametrical "Mann-Whitney U" and "Kruskal-Wallis One-way variant analysis" were applied. To detect the associations between variables and to expose these associations in mathematical relations correlation (Pearson, Spearman etc.), regression analysis were done. Multivariate statistical analysis methods (ANOVA, Logistic regression analysis etc.) were used to explain the research data. Results were interpreted as significant by p values of <0.05.

Results

We examined retrospectively the data of 149 patients whothat had undergone CABG at our institution between 2008 and

2012. 51.7 % (n=77) of the patients were under age of 65 and 48.3 % (n=72) were older than 65. Body mass index (BMI) was lower than 30 in 76.5 % (n=114) of the patients, higher than 30 in 23.5 % (n=35). POAF developed in 36.9 % (n=55) of the patients. Preoperative creatinine levels were below 1.4 mg/dl in 83.2 % (n=124) of the patients and were higher than 1.4 mg/dl in 16.8 % (n=25). 43 % (n=64) of the patients had Diabetes Mellitus (DM). In 84.6 % (n=126) of the patient population ejection fraction (EF %) was higher than 40 % and was below 40 % in 14.8 % (n=23; Table 1).

Table 1. Patient Demographics and Preoperative Data Related to the Predetermined Risk Factors

		(n)
Age (years)	<65	77 (51.7%)
	≥65	72 (48.3%)
BMI (kg/m2)	<30	114 (76.5%)
	≥30	35 (23.5%)
Preoperative Creatinine (mg/dl)	<1.4	124 (83.2%)
	≥1.4	25 (16.8%)
Type II DM	Yes	85 (57.0%)
	No	64 (43.0%)
EF	>%40	126 (84.6%)
	≤%40	23 (14.8%)
Distal Anastomosis (n)	1	1 (0.7%)
	2	10 (6.7%)
	3	35 (23.5%)
	4	38 (25.5%)
	5	47 (31.5%)
	6	14 (9.4%)
	7	4 (2.7%)
Postoperative ES Replacement (n)	0	28 (18.8%)
	1	69 (46.3%)
	2	45 (30.2%)
	3	7 (4.7%)

The earliest time POAF developed was day 1, while the latest was day 6 (Table 2). Among these patients with POAF (n=55)

Table 2. Timing of Development of POAF

Potoperative Day	(n)
1	7 (12.7%)
2	25 (45.5%)
3	19 (34.5%)
4	2 (3.6%)
5	1 (1.8%)
6	1 (1.8%)

POAF = Postoperative atrial fibrillation

the mean time in the development of AF was found day 2.42 ± 0.96. The minimum hospital stay length was 5 days and the maximum was 28 days. The mean value of total hospital stay length was 9.47 ± 3.38. Among the patients with no-POAF the total hospital stay was 8.31 ± 1.88 days, whereas it was found 11.45 ± 4.35 days in the POAF group. The difference betweenin hospital stay inbetween patients with POAF and no-POAF was found to be statistically significant (p<0.001) Minimum PICU stay was 1 day and maximum was 23 days. The mean PICU stay was 3.52 ± 2.42 days. In no-POAF group the mean PICU stay was 2.57 ± 0.95 days, whereas in POAF group the mean PICU stay was 5.13 ± 3.20 days. The difference in PICU stay between patients with POAF and no-POAF was found to be statistically significant (p<0.001). Minimum number of distal anastomoses was 1 and maximum was 67. The mean number of distal anastomoses was 4.19 ± 1.21. Iin the no-POAF group the number of distal anastomoses was 4.22 ± 1.25 and, in POAF group it was 4.15 ± 1.16. This difference was not found to be statistically significant (p=0.542). Among our patients minimum postoperative erythrocyte suspension replacement was 0, maximum was 3. . For the entire group of patents, Tthe mean value of the number of postoperative erythrocyte suspension replacement was 1.21 ± 0.80. In no-POAF group the number of postoperative erythrocyte suspension replacement was 1.18 ± 0.75, in POAF group it was 1.25 ± 0.87. The difference between patients with POAF and no-POAF was not found to be statistically significant (p=0.624).

Distribution and comparison of categorical variables in patients with POAF and no-POAF is shown in Table 3. 67.3 % (n=37) of

Table 3. Distribution and comparison of Predetermined Risk Factors in patients with POAF and no-POAF

Risk Factors	POAF (n)	No-POAF (n)	p
Age (years) ≥65	35 (37.2%)	37 (67.3%)	<0,001
BMI ≥30	20 (21.3%)	15 (27.3%)	0.405
Preoperative Creatinine (mg/dl)	17 (18.1%)	8 (14.5%)	0.577
DM	45 (47.9%)	19 (34.5%)	0.113
EF ≤40%	11 (11.7%)	11 (20.4%)	0.154
Distal anastomosis	4.15 ± 1.15	4.22 ± 1.25	0.542
Postoperative ES Replacement	1.25 ± 0.87	1.18 ± 0.75	0.624

BMI = Body mass index; DM = Diabetes mellitus; EF = Ejection fraction; ES = Erythrocyte Suspension; POAF = Postoperative atrial fibrillation

patients with AF were 65 and older, 32.7 % (n=37) of patients with AF were younger than 65. The difference between POAF and no-POAF groups was found to be statistically significant (p<0.001). Among the patients with POAF body mass index (BMI) was below 30 in 72.7 % (n=40) and above 30 in 27.3 % (n=15). The difference between patients in both groups was not found to be statistically significant (p=0.405). In 14.5 % (n=8) of patients with POAF, pPreoperative creatinine levels were below 1.4 mg/dl in the 85.5 % (n=47) of patients with POAF and above 1.4 mg/dl in 14.5 % (n=8). The difference between patients with POAF and no-POAF was not found to be statistically significant (p=0.577). In POAF group, 34.5 % (n=19) of patients had DM, 65.5 % (n=36) did not have DM. The difference between both groups was not found to be statistically significant (p=0.113). EF was over 40 % in 79.6 % (n=43) of all patients with POAF, whereas below 40 % in 20.4 % (n=12). The difference between patients with POAF and no-POAF was not found to be statistically significant (p=0.154). The number of distal bypasses wereas >3 and below in 30.9 % (n=17) of patients with AF, more than 3 in 69.1 % (n=38) of patiebts in POAF greoupall patients with AF. and Tthe difference between patients with POAF and no-POAF was not found to be statistically significant (p=0.994).

Number of postoperative erythrocyte suspension replacement was 3 in 7.3 % (n=4) of patients with AF, 2 in 32.7 % (n=18) and, , 1 in 38.2 % (n=21). . 21.8 % (n=12) of patients with POAF did not receive any erythrocyte suspension and the difference between patients with POAF and no-POAF was not found to be statistically significant (p=0,379).

Discussion

Although it is generally considered as a temporary and relatively less dangerous condition, atrial fibrillation is associated with increased early and long term morbidity and mortality [13]. In patients who have undergone CABG, development of postoperative AF is related with more postoperative complications. Even though AF is the most common clinically detected arrhythmia, the true incidence of POAF following cardiac surgery is unclear. However the with reported incidence ranges from 10 to- 65%. The reason of this wide range can be derived from patient characteristics or type of surgery. In recent years the incidence of POAF is found to be increasing and advanced age of patients who have undergone CABG can be considered as the main reason of this problem. In our patients POAF developed in 36.9 % (n=55), these results were similar to other reports in the literature. Advanced age was reported several times as the most important predictor of AF after CABG [14]. Leitch et al [15] reported a 70 % increased AF risk with every decade. Advanced age is closely related with myocardial fibrosis and atrial dilation and it is also suggested changes that come with aging such as loss of nodal fibers, muscle atrophy, increased fat and fibrous tissue in sinus node, local interstitial amyloidal deposits are important factors in the pathology of AF. These structural changes may explain why AF is more common in the elderly population. 67.3 % of our patients with AF were 65 and older ($p < 0.001$).

Obesity can be considered as a risk factor for occurrence of AF [16]. People who are categorized as overweight (BMI >= 25 and < 30) or obese (BMI > 30) have a larger left atrium in size. Atrial dilation is a common condition in patients with chronic AF and mostly accompanied by ruptures in muscle fibers. Ducceschi et al [17] reported more AF cases among people with BMI ≥ 30. Hakala et al [18] reported that BMI ≥ 30 is an independent risk factor for development of POAF. In both studies increased left atrial sizes were detected by preoperative echocardiography and this relation between enlarged left atrium and POAF was found to be statistically significant. Also in a recent meta-analysis obese patients have been found to have a modestly higher risk of POAF compared with non-obese patients (p=0.002) [19]. In our patient population 15 patients with AF BMI were ≥ 30 and in contrast to before mentioned studies, the results were not statistically meaningful (p=0.405). Nardi et al [20] demonstrated that large left atrium volumes were independently correlated to the occurrence of POAF in patients undergoing isolated CABG. We could not find any relationship between the left atrium size with the occurrence of POAF.

Rubin et al [21] stated the importance of number of coronary artery lesions in development of POAF. In a recent retrospective study the authors confirmed that POAF results in worse in-hospital and 30-day outcomes but no correlation was found between POAF and number or type of grafts [22]. In our study the difference between patients with AF and no-AF concerning the number of anastomoses was not found to be statistically significant (p=0.994).

Koch et al [23] evaluated the risk of POAF in patients who receive erythrocyte transfusions after CABG and reported an increased risk for POAF with every unit of erythrocyte transfusion. Alameddine et al [24] also pointed out an increased risk of POAF with higher number of erythrocyte transfusions, they reported AF risk increases 61 % with each increasing level of erythrocyte transfusion. Although the mechanism is not yet well understood, it is suggested increased inflammatory responses related with transfusions can trigger AF by damaging atrial tissue due to activated leukocytes. In our study postoperative erythrocyte suspension replacement ranged between 0 and 3, 1.21 being the mean value. We did not find any statistically significant results for occurrence of POAF but Koch et al [23] stated their mean value of transfusion was 2.13 so the statistical difference between studies can be explained by the different numbers of transfusion.

Renal dysfunction is related to long-term mortality and myocardial infarction after CABG. In a recent study Chua et al [25] reported renal dysfunction (Glomerular Filtration Rate < 60 mL min−1 1.73 m−2) associated with left ventricular diastolic dysfunction is an important risk factor for POAF after cardiac surgery and can be used to improve the diagnostic accuracy of the CHA2DS2-VASc score. In our study only 8 of 25 patients with AF had higher than 1.4 mg/dl preoperative creatinine levels and it was not found to be statistically significant. Preoperative low EF % (EF ≤ 40 %) is also suggested as one of the predictors of POAF. It has been offered that preoperative low EF % can create an expansion in atria plus the effects of intraoperative ischemia may cause an abundant environment for POAF. In our study, we did not find a significant relation between low EF % and POAF.

We also found that POAF can increase the time that was spent in PICU and the ward ($p < 0,01$). In a recent trial, based on the patient database of The Veterans Affairs Randomized On/Off Bypass Trial, it's been reported that POAF patients had longer postoperative hospital stay (+3.9 days) and higher discharge costs compared to no-POAF patients. At 1 year, POAF patients found to have more than twice the adjusted odds of dying ($p < 0.01$), with higher 1-year total cumulative costs [13]. In our study, among the patients with no-POAF the total hospital stay was 8.31±1.88 days, whereas it was found 11.45 ± 4.35 days in the POAF group. The difference in hospital stay between patients with POAF and no-POAF was found to be statistically significant ($p<0.001$). In no-POAF group the mean PICU stay was 2.57 ± 0.95 days, whereas in POAF group the mean PICU stay was 5.13 ± 3.20 days. The difference in PICU stay between patients with POAF and no-POAF was found to be statistically significant ($p<0.001$).

The biggest restriction of our study was lack of telemetry monitorization of patients for detection of POAF. ECG monitorization was done with standard D-II derivations in a 5 lead monitor at PICU. At ward pulse and blood pressure were obtained every four hour and when is necessary. After detection of arrhythmia, 12 derivation ECG was obtained so in the mean time short term, asymptomatic, paroxysmal AF attacks might have been

stayed undetected.

In conclusion, AF is the most common clinically detected arrhythmia after CABG. Despite the advancements in surgical techniques, myocardial protection and anesthesiology incidence of POAF is still not in the desired range. AF increases postoperative short and long term mortality and morbidity. There is also an increase in total hospital stay length and total health care expenses. In our study we detected a higher incidence of POAF with advanced age. We also observed that AF most commonly occurs at postoperative 2nd and 3rd days and patients with AF requiring longer stays at PICU and hospital. We believe that a thorough preoperative evaluation of risk factors in patients who undergo CABG may help health care providers to take the necessary precautions in order to prevent and detect POAF and decrease the mortality and morbidity related to it. These efforts can also help to prevent unnecessary drug use and their adverse effects, shortens the length of PICU and hospital stay and decrease amount of health expenses.

Competing interests

The authors declare that they have no competing interests.

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Demodex Parazytes in Schizophrenia

Şizofrenide Demodex Parazitleri

Demodex Parazytes and Schizophrenia

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Özet

Amaç: Demodex parazitleri tüm dünyada özellikle de insanların yüz bölgesinde yaygın olarak görülür. Demodex spp.'lerin immun sistemin kısmi olarak baskılanması ve özbakımın yetersiz olmasından dolayı şizofrenide daha yaygın olaileceği ileri sürülmektedir. Bu çalışmada şizofreni hastalarında Demodex ektoparazitinin yaygınlığının incelenmesi amaçlanmıştır. Gereç ve Yöntem: Çalışmaya katılan 31 şizofreni hastası ile herhangi bir psikiyatrik veya dermatolojik hastalığı bulunmayan 30 kontrol vakasından Demodex spp.'leri belirlemek için yüzeyel deri biyopsi tekniği ile örnek alınmıştır. Bulgular: Şizofreni grubunda dokuz, kontrol grubunda ise iki hastada Demodex spp. pozitif bulunmuştur. Demodex spp. görülme sıklığı açısından hasta ile kontrol grubu arasında istatiksel olarak anlamlı bir fark bulunmuştur ($p<0.05$). Tartışma: Sonuç olarak Demodex spp. şizofreni hastalarında immunsupresyon ve azalmış özbakım nedeniyle daha sık görülmektedir. Şizofreni hastalarında özellikle yüzdeki cilt lezyonlarında Demodex parazitleri akılda tutulmalı ve gerek varsa tedavi edilmelidir.

Anahtar Kelimeler

Şizofreni; İmmun Sistem; Ektoparazitik İnfestasyonlar

Abstract

Aim: Demodex parazytes are commonly present all over the world, especially in facial region of humans. Demodex spp. are assumed to be more common in schizophrenia due to partial suppression of immune system and lack of good self-care. The present study aimed to investigate the prevalence of Demodex ectoparasites in schizophrenia patients. Material and Method: In the study, 31 patients with a diagnosis of schizophrenia and 30 subjects without any psychiatric disorder or skin disease were subjected to standard superficial skin biopsy technique to determine Demodex spp. Results: Demodex spp. were found positive in nine schizophrenia patients and it was found positive in two healthy controls. Considering the prevalence of Demodex spp., a significant relationship is found between schizophrenia patients and normal controls ($p<0.05$). Discussion: As a result, Demodex spp. are more common in schizophrenia due conditions of reduced self-care and immunosuppression, Demodex parasites should be considered in schizophrenia patients with skin lesions, especially on the face, and should to be treated if needed.

Keywords

Schizophrenia; Immune System; Ectoparasitic Infestations

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Introduction

Demodex species are commonly seen mites in the facial region of humans and widespread all over the world. Although there are numerous species of Demodex, two kinds of them can settle in the human body [1]. Demodex folliculorum and Demodex brevis live on the pilosebaceous glands and hair follicles and transmit from human to human by close contact interactions and result in infestation [2]. Demodex folliculorum is the most common ectoparasite found in humans [3]. For the diagnosis, cellophane-tape, skin scraping, punch biopsy and standard superficial skin biopsy methods are used [4]. Pathogenicity of Demodex spp. is still a debate and symptoms are very rare. It has been shown that Demodex spp. can cause severe infections only in immunesupressed and middle and older-aged people [5].

Schizophrenia is a chronic and debilitating neuropsychiatric disorder that affects approximately 1 % of world population [6]. The main clinical symptoms of schizophrenia include; delusions and hallucinations, thought, speech and behaviour disorders, social withdrawal, loss of cognitive skills. Impairment in daily life skills, reduced self-care and weak immune system are the main symptoms reported for the disease [7].

The underlying neurobiological mechanisms of this disorder remains unclear however there are growing of evidence that oxidative stress and immune sytem abnormalities play an important role in the etiology . In one third of patients with schizophrenia shows immunological abnormalities such as an altered cytokine profile in serum and cerebrospinal fluid [6].

As immun system abnormalties, lack of hygiene and self care are seen in schizophrenia, it is hyposthesized that Demodex spp. can be more prevalent in schizophrenia patients. To our knowledge, there have not been any reports focusing on the prevelance of Demodex spp. mites in patients with schizophrenia. This study aimed to identify the prevalence of Demodex spp. in patients diagnosed with schizophrenia.

Subjects and Method

Patients

Of 39 consecutive outpatients, aged 18 to 60 years, who had applied to the Mustafa Kemal University, School of Medicine, Research and Training Hospital Outpatient Psychiatry Clinic and had been diagnosed with schizophrenia according to Diagnostic and Statistical Manual of Mental Disorders IV-TR (DSM-IV-TR) between September 2013 and January 2014, 31 agreed to participate in the study. The control group included 30 healthy volunteers with no signs of skin disease.

Ethics approval for this study was obtained from local ethic committee in accordance with the Helsinki Declaration. All patients provided written informed consent for participation in this research. Exclusion criteria were to be pregnant or breastfeeding, to have a chronic disease like hypertension, diabetes mellitus etc.., to use immunsupressive agents and to have immun deficency sendroms like AIDS. The patients with any kind of comorbid dermatological or psychiatric disorder were excluded. All participants were subjected to a survey and samples were collected from participants by standard skin surface biopsy method using an adhesive band containing cyanoacrylate. Sample collection from study participants were achieved by taking samples from five different regions of their faces (nose, forehead, cheek, jaw) . Before samples were taken, it was guaranteed that there was no cream or lotion on the faces of the patients and that the region where the samples would be taken was dry. Also, the region was cleaned with alcohol. To determine number of Demodex in cm2 samples were examined using Hoyer solution and observed under the light microscope at x400 and x1000 magnifications. Five of more Demodex in cm2 were accepted as positive for the Demodex.

Statistical Analysis

The SPSS 18.0 (Statistical Package for Social Sciences Chicago,IL, USA) package program was used for the statistical analysis. Descriptive and analytic statistics were performed. Chi-square test was used to compare categorical variables. Continuous variables were presented as mean ± standard deviation $p < 0.05$ was considered as statistically significant.

Results

Demodex spp. positivity was evaluated in terms of age and gender in patients diagnosed with schizophrenia. 14 female and 17 male schizophrenia patients aged between 18 and 60 years (mean: 36.64 ± 5.11years) and as a control group 12 females and 18 males aged between 19 and 52 years (mean: 32.44 ± 8:58 years) were enrolled. The gender distribution of schizophrenia patients was similar to the control group (Table 1). Demodex spp. was detected on the faces of 29.03% (n=9) of patients diagnosed with schizophrenia and 9.5% (n=2) of the control group. (Table 2)

Table 1. Gender distributions of the schizophrenia and control groups.

Gender	Schizophrenia n (%)	Control n(%)	p*
Male	17(%54,8)	18(%60)	0.797
Female	14(%45,2)	12(%40)	
Total	31(%100)	30(%100)	

* chi-square test.

Table 2. Incidence of Demodex spp. in patients with schizophrenia and control groups according to gender.

		DIAGNOSIS					
		Demodex spp. Positive		Demodex spp. Negative		Total	
		N	%	N	%	N	%
Schizophrenia	Male: 17	6	35.3	11	67.7	17	54.8
	Female: 14	3	21.4	11	78.6	14	45.2
Control	Male : 18	1	5.55	17	94.4	18	60
	Female: 12	1	8.33	11	91.7	12	40

The existence of Demodex spp on the faces of patients diagnosed with schizophrenia was found to be significantly higher compared to the control group (p=0.043) (Table 3). Incidence of Demodex spp. was found to be 5.7 times higher in schizophrenia as compared to control group (Table 3). Positive results were observed mostly in nose area and the second most common region was determined as forehead. In one patient, all of the regions were positive. Additionally, forehead area was determined as the region that has the highest parasite concentration (Table 4).

Table 3. Distribution of the Demodex spp. in schizophrenia and control groups.

		Schizophrenia n (%)	Control n (%)	p*	Odds Ratio	95% Interval Lower	Confidence Upper
Demodex spp.	Positive	9 (%29.03)	2 (%6.7)	0.043	5.72	1.12	29.25
	Negative	22 (%70.97)	28 (%93.3)				

* chi-square test.

Table 4. Distribution of Demodex spp. according to the facial area of patient and control groups.

	Schizophrenia (n=9) Demodex spp.		Control (n=2) Demodex spp.	
	n	%	n	%
Nose + Right Cheek	5	55,6	1	50
Nose + Left Cheek	1	11,1	-	
Nose	9	100	1	50
Nose + Forehead	7	77,8	-	
Nose + Jaw	1	11,1	-	

Discussion

Demodex folliculorum and Demodex brevis are obligate parasites that only originates in human hair follicle and pilosebaceous unit. Demodex spp. normally present in intact skin, hair follicles, and sebaceous glands without any pathogenic effect. However, in conditions of poor hygiene and suppressed immune system, Demodex spp. can cause inflammatory dermatitis, keratosis and epitelioma, acne and acne rosacea [8].

The density of Demodex spp. increases with age [9]. Aycan et al.investigated the incidence of Demodex spp. in various types of disease states and age groups[4]. They used standard biopsy technique and observed 92 (%53.5) positive results among 172 patients that were 21 years old age and older. In our study, we found nine (%29.03) positive among 31 patients whose mean age was 36.64. In control group two subjects were positive (%6.7) among 30 controls whose mean age was 32.44. There was no significant relationship between the incidence of Demodex spp. and age.

There are several investigations about gender and Demodex ssp. Kokacya et al have investigated Demodex spp. Prevelance in 63 depressive patient They found four positive results in 27 male (26.7%) and 11 (34.2%) positive results in 36 female patient. They found no significance between gender and Demodex spp. prevelance [2].

In the present study, we found six (%35.3) positive among 17 males and 3 (%21.4) positive among 14 females. These results were not statistically significant (p=0.797). Although, these results were insignificant, high prevalence of Demodex spp. in schizophrenia (%35.3) in males can be associated with reduced self-care. Demodex infestation might progress heavily in elderly and immunsupressed people.

. It has been reported that Demodex spp. are widespread in patients with AIDS, leukemia, cancer, diabetes, rheumatoid arthritis, and in pregnant women and hemodialysis patients [10].

Parasite concentrations may increase due to suppressed immune system in these disease manifestations [10-13]. There are studies investigating the incidence of Demodex spp. in immunocompetent people. In a study, Ozcelik et al. identified 25.53 % positivity of D.folliculorum in patients with chronic renal failure and suppressed immune system [1]. In an another study, patients who were diagnosed with type 2 diabetes mellitus examined in terms of D. folliculorum ,24.6 % of patiens were positive. Also, parasite concentration were high in samples taken from cheek area compared to control group[14].

Schizophrenia is a, affecting approximately 1% population and starts before the age of 25. Schizophrenia, a complex disease with multifactorial etiology, is seen in all social classes, distorts the interpersonal and occupational capability and shows a chronic course [15]. Reduced self-care and weak immune functions are the early symptoms of schizophrenia [7,16]. Generally, schizophrenia is characterized with impartment of cell-mediated immune system, atypical lymphocytes in peripheral blood, decrease in the number and the function of lymphocytes, abnormal lymphoproliferative response to mitogens, abnormal cell-medicated and humoral response to neurons, changes in the number and the ratio of T cells [17,18]. Thus, there is a strong relationship with immune system functions and schizophrenia [19,20]. Müller et al showed that the cellular immune parameters were related to the course of the psychopathological symptoms in schizophrenia and, associated with therapeutic outcome of neuroleptic treatment [21].

Down-regulation of endogenous antioxidant and anti-inflammatory mechanisms has been identified in schizpohrenia [22]. For instance prolidase activity which is shown correlated with oxidative stress is found to be higher in schizophrenia petients [23]. Furthermore there are evidences that increased serum levels of chemokines, pro-inflammatory cytokines and, monocytosis, raised inflammatory gene expression in monocytes and altered T-cell function in schizophrenic patients [24-27].

Environmental conditions, nutrition, education level, economic status, hygiene conditions and factors such as the person's immune status is directly related to the prevalence of parasitic infections. Demodex species which are the most common types of permanent parasites of humans, leads to the formation of various dermatological problems in lesions and in skin regions that lack well cleansing. In patients with schizophrenia, especially in cases in which the negative symptoms were observed, they may neglect daily care and cleaning because the social withdrawals are at the forefront. Therefore Demodex spp. can be more prevalent in schizophrenia patients due to lack of self-care.

In the present work, the difference was statistically significant for the positivity of Demodex spp. among patients with schizophrenia as compared with the control group (p=0,043) and incidence of these parasites in schizophrenic patients were found to be significantly higher. Although in schizophrenia, self-care is almost always being affected, high prevelance of Demodex spp. in schizophrenia patients appears to be associated with loss of functionality and self care rather than disease's direct effect.

This study has some limitations. Firstly, the sample size is small (n=31). Secondly with data being retrieved from only one hospital in Hatay, results may not be generalized for all schizophrenia patients. Thirdly as severity of schizophrenia and functionality are not measured by scales, the correlation between demodex spp presence and severity of schizophrenia could not be evalu-

ated. Despite these limitations this is the first study that evaulates Demodex spp prevelance in schizophrenia patients. To generalize these results, multicentre studies with more schizophrenia patients are needed.

Conclusion

Last of all, the weakening of the immune system, frequently impaired social behavior, especially the lack of hygienic self-care can be risk factors for the Demodex spp. infestations in schizophrenia cases. In these patients, especially in skin lesions, Demodex spp. have to be taken into consideration by informing patients about the treat and explaining the protection-control methods and anti-parasitic treatment should be applied in parasite positive patients.

Competing interests

The authors declare that they have no competing interests.

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Management of Postpneumonectomy Bronchopleural Fistulae

Postpnömonektomik Bronkoplevral Fistül Yönetimi

Management of Fistulas

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Özet

Amaç: Postpnömonektomik bronkoplevral fistül (PPBPF), pnömonektomi sonrası görülebilen, tedavisi zor ve uzun soluklu bir komplikasyondur. Tedavide sabit görüş olmamakla birlikte resütüre edilemeyen fistüllerin fleb ile örtülmesi genel prensiptir. Omentumun fleb olarak seçimi tedavi başarısını arttırabilir.Çalışmamızın amacı kliniğimizde tedavi edilmiş PPBPF'lü hastaların değerlendirilmesi ve omentopeksinin önemini tartışmaktır. Gereç ve Yöntem: Göğüs cerrahisi kliniğinde 2011-2014 yılları arasında yapılan 162 pnömonektominin 12'sinde PPBPF gelişti. Bu hastaların demografik özellikleri, fistül tedavi stratejileri, morbidite ve mortaliteleri geriye dönük ameliyat kayıtları ve hastane bilgi bankasından incelendi. Bulgular: Çalışmamızdaki PPBPF oranı % 7,4 olarak tespit edildi. On hastada bronkoplevral fistülü bir dizi tedavi ile kapatılabilmiştir. Sekiz hastaya omentopeksi'nin temelinde olduğu bir dizi tedavi uygulanmıştır. Biri haricinde fistül tedavisi başarılı olmuştur. Başarıya ulaşan diğer hastalarda erken dönemde stapler ile resütürasyon ve erken dönemde vakum yardımlı kapama yapılabilmiştir. Bronkoplevral fistül kapatılamadığı için başarısız kabul edilen hastalardan birinde ARDS nedeniyle hasta kaybedildiği için tüm tedavi seçenekleri denenememiş, diğerinde ise tüm tedavi seçenekleri (elosser flebi, trakeal stent, omentopeksi, torakomyoplasti, vakum yardımlı kapama) denenmiş olmasına rağmen başarı sağlanamamıştır. Tartışma: PPBPF göğüs cerrahisi kliniklerinin en önemli morbidite ve mortalite sebeplerinden biridir. Tedavisi uzun sürebileceği için iyi planlanmalı ve bu tedaviler bu konuda tecrübeli klinikler tarafından uygulanmalıdır. Omentumun kanlanması iyi olduğu için göğüs cerrahları tarafından sık olarak tercih edilmektedir. Tecrübeli ellerde yapılan omentopeksi ve j tipi trakeal stent uygulamasının fistül tedavisinde başarılı olduğunu düşünmekteyiz.

Anahtar Kelimeler

Postpnömonektomik; Bronkoplevral; Fistül

Abstract

Aim: Postpneumonectomy bronchopleural fistula (PPBPF) is a hard-to-treat complication that may develop after pneumonectomy. It follows a persistent course. Although there is no commonly adopted method, closure of the fistula with flaps is the general principle. The use of the omental flap may provide higher success rates in the treatment. Material and Method: PPBPF developed in 12 out of 162 pneumonectomies performed at the department of thoracic surgery between 2011 and 2014. The demographic characteristics, fistula management strategies, morbidity, and mortalities were retrospectively studied by analysis of operative reports and a digital database. Results: The rate of PPBPF was 7.4%. The bronchopleural fistulae could be closed by various treatments in 10 patients; omentopexy constituted the basis of treatment in 8 of them. In the other patients with successful results, resuturing with staplers and vacuum assisted closure were performed during the early period. One of the patients who failed treatment died due to ARDS; therefore, it was not possible to apply all the treatment alternatives. In the other patient, despite the use of all treatment alternatives (eloesser flap, tracheal stent, omentopexy, thoracomyoplasty, vacuum assisted closure), the treatment failed. Discussion: PPBPF is one of the most significant causes of morbidity and mortality in thoracic surgery units. Because its treatment may be long, a good plan and its execution by experienced units are necessary. The omental flap is increasingly popular due to good perfusion. We believe that omentopexy and j type tracheal stent performed by experienced teams will provide successful results in fistula treatment.

Keywords

Postpneumonectomy; Bronchopleural; Fistulas

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Introduction

Bronchopleural fistula (BPF) is the presence of a communication between the bronchial system and the pleural space. It is a difficult condition to treat, with a postoperative mortality between 15-75%.[1]

The most common cause of BPF is lung surgery (especially pneumonectomy). Less common causes include alternative treatment methods such as radiofrequency ablation, infection, inflammatory diseases, or trauma. The rate of postpneumonectomic bronchpleural fistula (PPBPF) is 1-12% [2-5]. In recent years, the decrease in the number of operations performed due to inflammatory diseases such as tuberculosis, better support of the bronchial stump during surgery, improved suture options and quality, and increased surgical experience have decreased the incidence of BPF [3,6]. Although there is no commonly agreed method for the treatment of BPF, basic principles include resuturing the bronchus if possible, covering the fistula with vascularized tissues, and constriction of the operative cavity [7,8]. Primary resuturing is effective in the early period (1-7 days) BPF. In late phase (>30 days) fistulae, the treatment options differ according to the institution and experience [8].

Myoplasty, pericardial flap, muscular flap, diaphragm flap, or omentopexy may be used for the treatment of BPF [7-10]. Most authors prefer the omentum as a vascularized coverage [8,10].

The aim of this study was to evaluate the PPBPF patients who were treated in our department and to discuss the role of omentopexy (OMN) in the treatment of BPF.

Material and Method

In the thoracic surgery department of our hospital, 1529 patients were operated on between January 2011 and January 2014. Pneumonectomy was performed in 172 patients, and lobectomy was performed in 425 patients for benign or malignant causes. Ten patients with pneumonectomies were excluded from the study due to insufficient data. Among 162 patients with pneumonectomies, 12 developed BPF and were managed with a series of treatments. BPF developed in only one patient with a lobectomy. The lobectomy group was not analysed because this study focuses on PPBPF. These patients were all males, their ages were between 47-68 (mean 58.25), and they mostly had right sided lobectomies (10/12). Patients who developed BPF were analysed retrospectively with respect to whether the operation was performed under elective or emergency setting, indications, the operated side, type of operation (standard or complete pneumonectomy), time of BPF, BPF treatment strategy, treatment success, comorbidity, oncology treatment received, morbidity, and mortality. The bronchus was generally closed with a bronchial stapler. In endobronchial tumors, to ensure negative margins, the bronchus was cut with a scalpel under direct vision, and closed with 3/0 continuous prolene sutures. In both stapler or prolene closures, the bronchus was covered with parietal pleura or mediastinal fatty tissues. The procedures applied in patients with bronchopleural fistulae are described below.

Surgical Technique

Patients with PPBPF undergo primary resuturing in the early (<7 days) period. The treatments in the moderate and late terms depend on the patient's condition. According to the overall experience of the department, PPBPF patients are treated as follows:

1. A tube thoracostomy is applied: The liquid causing the air fluid level is drained and diagnosis is confirmed by observing the escape of air. The liquid is sent for microbiologic examination.
2. A fiberoptic bronchoscopy (FOB) is performed. The length of the main bronchus is calculated, and the width of the fistula is determined. The contralateral bronchial tree is aspirated to increase oxygenation. The bronchial lavage sample is sent for microbiological examination.
3. COPD patients, in particular, may be unable to tolerate a fistula; increasing the ventilation should be attempted by inserting a tracheobronchial stent.
4. If a primary revision is not considered (beyond 7-14 days), an eloesser flap (open window thoracostomy) is performed.
5. A transpericardial bronchial revision can be made if the right main bronchial stump is longer than 1 cm.
6. The left main bronchial fistula is revised with a right thoracotomy.
7. If the right main bronchial stump is shorter than 1 cm, an open window thoracostomy (OWT) is opened. Approximately 3 months is required for the infection to subside and for adequate granulation to develop.
8. While revision of the bronchus with primary sutures is often possible, this is not an obligation.
9. The bronchial stump is supported with omentopexy. If the omentum does not fill the thoracic cavity, the size of the cavity is reduced by the addition of a thoracomyoplasty.
10. A conservative follow up is performed in patients with persistent BPF if they can tolerate it; otherwise, a tracheobronchial stent is applied.
11. Vacuum assisted closure (VAC) is applied to the thoracic cavities of patients with closed BPFs [17].
12. After a significant decrease in size, the thoracic cavity can be closed either primarily or with skin and muscle flaps by plastic surgeons.

An institutional review board approval was not considered necessary because the study was retrospective, and the applied treatment had been described previously.

Results

The rate of PPBPF was 7.4% (12/162). Clinical charasteristics of the patients are given in Table 1.

Mean age was 58.25 (47-68) years, all patients were men, and most had comorbidities. The most common cause of BPF was pneumonectomy. Because the PPBPF had developed after the 7th postoperative day and the main bronchus distance was shorter than 5 mm, rethoracotomy and resuturing in the early phase were not performed. The cause of the fistula was empyema except for one patient (patient 7). In this patient, the main bronchus was cut at the tracheal junction to achieve negative margins, and then it was sutured. Only one patient (patient 9) underwent a transpericardial bronchial revision together with OWT on postoperative day 15. The treatment for PPBPF was successful in 10 patients. Regardless of treatment success or failure, all patients were managed with the same protocol: a 3

Table 1. Clinical characteristics of the patients with PPBPF

	Age	PPBPFT (days)	SIDE	TREATMENT	TS	COMORB	MORB	MORT
1	62	10	R	EF,OMN,S	+	-	-	-
2	56	30	R	EF,OMN,S ,VAC	+	-	-	-
3	68	180	R	EF ,OMN	+	ADJCT	-	20.M CM
4	52	20	R	EF,BR,OMN,TRMYPL,VAC	+	NEOCRT	-	-
5	47	20	R	EF, VAC	+	DM,HT	-	6.M CM
6	60	15	R	EF	-	DM,RF	AP	ARDS
7	65	8	R	EF,S,OMN,TRMYPL,VAC,S	-	OPLCA,		
RT	-	15.M LR						
8	60	60	R	EF,OMN,TRMYPL,S	+	-	MI	-
9	63	10	R	EF,TPBR	+	-	PER, HF	3.M VM
10	57	15	R	EF,S,BR,OMN,TRMYPL	+	-	-	-
11	50	90	R	OMN,BR,TRMYPL	+	ADJCRT	-	-
12	59	30	L	R-BR, L-EF	+	NEOCRT	AP	ARDS

PPBPFT (days): Postpneumonectomy bronchopleural fistula time (days), SIDE : Side with pneumonectomy, TREATMENT: treatment strategy in patients with bronchopleural fistula, TS: Treatment success, COMORB: comorbidity, MORB: morbidity, MORT: mortality, R: right, L: left, EF: eloesser flap, OMN: omentopexy S:tracheobronchial stent, VAC: vacuum assisted closure, BR: bronchial revision, TRKMYPL: thoracomyoplasty, TPBR: transpericardial bronchial revision, R-BR:revision of the left main bronchus with right thoracotomy, L-EF: left eloesser flap, ADJCT: Adjuvant chemotherapy, NEOCRT: Neoadjuvant chemoradiotherapy, DM: Diabetes mellitus, HT: hypertension, RF: renal failure, OPLCA: operated laryngeal cancer, RT: radiotherapy, AP:aspiration pneumonia, M:month, PER: pericarditis, HF: heart failure, CM: cranial metastasis, LR: local recurrence, VM: vertebral metastasis, ARDS: adult respiratory distress syndrome

month period elapsed after the eloesser flap, and an omentopexy was performed after fistula revision whenever possible. A thoracomyoplasty was generally added. Except for one patient, the bronchial stump was supported with an omentopexyin all the patients who had successful treatments. Two patients did not respond to BPF treatment. The treatment in one of these patients could not be completed due to the development of ARDS after OWT. In the other patient, the fistula did not close completely due to insufficient omentum. However the ventilation improved because of the decreased fistula size, and the stent was removed. Three of our patients received neoadjuvant therapy. The first and second patients did not receive adjuvant therapy because it was not seen as necessary. The third patient died shortly after bronchial revision, and therefore could not receive adjuvant therapy. One patient developed a fistula during the 3rd month of chemotherapy. He was able to complete his treatment after the BPF was treated. Two patients (16.6%) died due to postoperative pneumonia and ARDS.

The right sided PPBPF remains the most significant surgical problem in thoracic surgery [11,12]. The incidence of PPBPF in previous studies ranges between 1-12% [4,5]. In our series the PPBPF was 7.4%, and was found to be within a reasonable range compared to other series. PPBPF is a difficult-to-treat condition, carrying a high mortality ranging between 15-75%[1]. In our series two (16.6%) patients died because of ARDS secondary to pneumonia, similar to previous reports [5,13]. Therefore PPBPF, which may have severe consequences, requires a good treatment plan.

The preferred treatment in PPBPF remains controversial [6-11,14,15]. The general tendency in our series was, if the bronchus would not be revised, to perform an OWT as soon as possible after the PPBPF was fixed with a tube thoracostomy. We believe that OWT provides better infection control compared to the less invasive methods like the Clagett procedure [1]. In our opinion, performing an omentopexy and a thoracomyoplasty after the infection is under control is a more widely accepted approach. As reported in previous studies, the omentum is a well-perfused tissue ideal for infected areas, and it protects the bronchial stump [10,16]. Once the BPF is closed, the treatment we have recently applied in postpneumonectomic empyema is vacuum assisted closure [17]. Depending on the surgical experience, deviations from this procedure are possible. Bronchial revision is suggested during the early period of PPBPF [7].

Based on our clinical experience, primary repair of a BPF is feasible within the first 14 days, provided that the length of the main bronchus is greater than 5 mm on FOB. In our study, one patient with a BPF on the 8th day (patient 7) had a main bronchial length of 1-2 mm and therefore revision was not considered. On the other hand, there were patients (patients 4, 10,11) who underwent successful bronchial revisions after bronchial dissection although they were on the postoperative 3rd month.The thoracotomies in two of these patients could be closed completely with omentopexy and without a need for VAC (patients 10,11). Patient number 10 had a BPF on the postoperative third month and during adjuvant chemotherapy. The BPF in this patient was accepted as an early period fistula, and omentopexy could be performed as suggested by Chichevatov et al. [8]. Sarkar et al. reported that bronchial revision could be performed with an anterior transpericardial approach [11]. One patient with a right pneumonectomy and a bronchial stump longer than 1 cm underwent successful bronchial revision with an anterior transpericardial approach (patient 9). Thoracomyoplasty (TRYMPL) or muscle transposition was avoided in this patient due to cachexia. This patient developed pericarditis and heart failure in the postoperative period, and discharged home after treatment. Jablonski et al. reported that pericardial flap and fibrin glue were superior to omentopexy and myoplasty [9,14]. We believe that opening the pericardium within an infected site will increase the risk of pericarditis. Billie et al. reported that the simultaneous application of a tracheal j stent for closing the BPF and omentopexy for controlling the infection was a promising approach [10]. TRYMPL is a viable option in the treatment of BPF [8,9]. In our series, TRYMPL was necessary in 5 patients to decrease the size of the cavity and reduce the rate of re-infection after omentopexy when the omentum was insufficient to totally obliterate the thoracic cavity.

In our patients, stents were applied to support the ventilation prior to the surgical treatment of BPF, especially in patients who could not tolerate the fistula (patients 7,10). The j stent could be applied successfully in 3 patients whose fistulae persisted after the surgical treatment of BPF (patients 1,2,8). The j stent was applied to another patient who could tolerate the fistula, but had a tracheoesophageal tumor recurrence (patient 7). There were two unexpected morbidities; patient 8 sustained a myocardial infarction during placement of the j stent, and patient 9 developed heart failure after pericarditis. We believe

that patients who will be treated for BPF need a good preoperative assessment for cardiac risks.

According to Sarkar et al. a j stent may be applied in patients who appear to be unsuitable for a second operation [11]. In the same study the authors reported that there should be no infections in the pleural cavity. However,we believe this is not necessary because a well placed stent will prevent aspiration of the infection.We therefore prefer to open an OWT immediately when BPF develops, and thus aim to decrease the infection. It is our experience that the infections subside significantly on the third month of fistula [17]. An omentopexy during the third month will have a higher likelihood of closing the fistula without infecting the omentum, which is a vital organ. In the absence of a fistula, VAC therapy rapidly decreases the size of the thoracic cavity and enables primary closure. Two patients died because of aspiration pneumonia related to intubation and subsequent ARDS. In order to prevent this complication, we agree with Slinger, who suggested routine application of selective intubation with FOB [18].

Conclusion

In conclusion, while performing a right pneumonectomy, the bronchial stump must be supported with a viable tissue. Omentopexy is a viable option in the management of PPBF. VAC is successful in PPA, and the tracheal j stent must always be kept in mind as a support for omentopexy.

Competing interests

The authors declare that they have no competing interests.

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The Prevalence and Patterns of Allergic Sensitization in Isparta, Turkey

Isparta'da Görülen Alerjik Duyarlılaşma Paternleri ve Sıklığı

Allergic Sensitization Patterns in Isparta

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Özet

Amaç: Bu çalışma, Isparta'da görülen alerjik duyarlılaşma paternleri ve sıklığının belirlenmesi amacıyla planlanmıştır. Gereç ve Yöntem: 266'sı çocuk, 213'ü kadın, 119'u erkek toplam 598 hastanın serum spesifik IgE düzeyleri fluoroenzymeimmunoassay metod (UniCAP, Pharmacia and Upjohn Diagnostics) ile üretici firmanın önerileri doğrultusunda ölçülmüş ve değerlendirilmiştir. Bulgular: Çocuklarda alerjen duyarlılığı % 26.3, yetişkinlerde % 27.1 oranındadır. Cinsiyete göre sonuçlar irdelendiğinde ise erkek çocuklarda % 32.9, kız çocuklarda % 16.7, yetişkin erkeklerde % 40.3, yetişkin kadınlarda % 19.7 oranında alerjen duyarlılığı olduğu tespit edilmiştir. Herhangi bir alerjene duyarlılık saptanan çocuk ve yetişkin yaş grupları arasında yapılan istatistiksel analizlerde anlamlı farklılık saptanmamıştır (p> 0.05). Cinsiyet yönünden karşılaştırıldıklarında ise erkeklerde kız çocuklarına kıyasla ve yetişkin erkeklerde kadınlara kıyasla daha yüksek oranda alerjen duyarlılığı tespit edilmiş olup bu fark istatistiksel olarak anlamlı bulunmuştur (p< 0.05). Tartışma: Çalışmamızda alerjen olarak en sık Ambrosia trifida (31.6 %), honey bee (31.2 %), elm (27.6 %), nuts (18.5 %), cows epithelium (17.4 %), Akarus siro (11.5 %), pen G (4.2 %) tespit edilmiştir. Yapılan analize göre bölgemizde en sık çimen ve ot polenleri, ağaç polenleri ve besinlere karşı duyarlılık tespit edilmiş ve özellikle erkeklerde alerjik duyarlılaşmanın daha sık olduğu sonucuna varılmıştır.

Anahtar Kelimeler

Alerji; Alerjik Duyarlılaşma; Spesifik IgE; Prevalans

Abstract

Aim: The aim of this study was to investigate the prevalence and pattern of allergic sensitization in Isparta. Material and Method: Of the patients, 266 were children, 213 were women, and 119 were men. Serum specific IgE levels were analyzed by fluoroenzymeimmunoassay method (UniCAP, Pharmacia and Upjohn Diagnostics AB, Uppsala, Sweden). Results: Serum specific IgE levels were positive in 27.1% of the adults and in 26.3% of the children. Hypersensitivity to allergens was determined in 32.9% of boys, in 16.7% of girls, in 40.3% of men, and in 19.7% of women. There was no difference in allergy prevalence in terms of age (p> 0.05). However, the prevalence of allergic sensitization in males was found significantly higher than in the females (p< 0.05). The most frequently encountered allergens were as follows: Ambrosia trifida(31.6 %), honey bee (31.2 %), elm (27.6 %), nuts (18.5 %), cow epithelium (17.4%), Acarus siro (11.5 %), and penicillin G (4.2 %). Discussion: It was determined that the rates of sensitization against grass and weed pollens, tree pollens, and foods were high in Isparta and they exhibited an increased tendency in males.

Keywords

Allergy; Allergic Sensitization; Specific IgE; Prevalence

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Introduction

The prevalence and diversity of allergic diseases have a tendency to increase in both our country and the world. The complicated interaction between nonspecific factors such as infections, cigarette smoking, air pollution, exposure to various allergens, the introduction of new environmental factors, shifting from traditional lifestyles, and genetic factors lead to this condition. These factors threaten both children and adults [1,2,3].

The common clinical circumstances in allergy are allergic rhinitis, asthma, anaphylaxis, urticaria, and eczema. In the management of allergic diseases, principally the allergens causing the allergy should be detected and avoided [4]. Furthermore, since allergic sensitization is an important factor for the development of allergic disease, the IgE-mediated sensitization patterns and prevalences of the societies should be determined [5]. In vivo skin tests and in vitro serological analyses for evaluation of sIgEs are applied in order to detect allergic sensitization. Clinical anamnesis and physical examination also play roles in diagnosis [6].

In vitro skin tests cannot be performed on some patients due to the risk of systemic reactions, false negative and positive results, difficulties in application to small children, interaction with ongoing treatments, and instability of the allergens in solutions [7]. In these conditions, in vivo tests are preferred. It is stated that the probability of the disease being related to IgE is below 5% in case of a negative specific IgE test result [7,8].

Recently concerns about epidemiological evaluations of the allergic diseases have been increaseing worldwide because the distinctness of prevalence based on various factors are observed not only within countries but also within different regions of a country [1]. Accordingly, in the present study, we aimed to investigate the prevalence and patterns of allergic sensitization in Turkey and to contribute to the determination of the allergy profile of Turkey.

Material and Method

Data of 598 patients from various clinical departments of Süleyman Demirel University Faculty of Medicine for whom allergy tests were ordered to consider an allergic etiology were analyzed retrospectively. Serum specific IgE (sIgE) levels were analyzed by the fluoroenzymeimmunoassay method according to the advice of the manufacturer (UniCAP, Pharmacia and Upjohn Diagnostics). Values between 0.35- 100 kU/L were taken into consideration and values greater than 0.35 kU/L were accepted as positive. Serum sIgE parameters include grass and weed pollens (ambrosia elatior, ambrosia trifida, anthoxantum odorat, artemisia vulgaris, cynadon dactylon, holcus lanatus, lolium perene, phleum pratense, phragmites communis, plantago lanceolata, poa pratensis, secale cereale, sorghum halpense, mixed grass (GX1, GX2) and mixed wild weed pollens (WX1)), tree pollens (acacia, pine, white pine, sycamore, mulberry, birch, elm, populusu, oak, cedarwood, cypress, willow, walnut tree and mixed tree pollens (TX4)), foods (wheat, walnut, strawberry, tomato, hazelnut, gluten, cow milk, cacao, melon, goat milk, cultivated mushroom, banana, orange, total egg, egg white, egg yolk), mixed fruit (FX15), mixed cereal (FX20), mixed foods (FX5, FX8, FX26), animal epithelium and hairs (cow, canary, goat, cat, sheep, dog, chicken), mixed animal epithelium and hairs (EX1), mites (Akarus siro, Dermatophagoides farinae, Dermatophagoides pteronyssinus, Glycyphagus domesticus) and mixed house dust mites (HX2), fungi (Alterneria alternata, Aspergillus fumigatus, Candida albicans, Cladosporium herba, Mukor, Penicillium notatum, Ptyrosporum orbi and mixed fungi (MX1)), bacteria (Staphylococcus enterotoksin A and B), bee venoms (Honey bee, Yellow jacket, Yellow hornet), parasites (Ascaris, Echinococcus), and drugs (Ampicillioly, Amoxicilloly, Pen G, Pen V).

Approval was received for this study from the ethics committee of the Suleyman Demirel University, Medical Faculty (reference number: 72867572_050_2373).

Statistical analyses were performed using the SPSS 15.0 program. The data's compliance with normal distribution was tested by One Sample Kolmogorov Simirnov Test. The Mann-Whitney U test was used for nonparametric variables and $p< 0.05$ was accepted as statistically significant.

Results

Of the 598 patients whose serum sIgE test results were evaluated, 213 (35.6%) were adult females with a mean age of 43.5±13.8 (17–85); 119 (19.9 %) were adult males with a mean age of 45.1±15 (17–80); and 158 (26.4 %) were boys and 108 (18.1%) were girls, with a total of 266 (44.5 %) children whose mean age was 7.3±3.7 (1–16). In the present study,

26.8 % (160/598) of the individuals tested as positive for at least one allergen while 73.2% (438/598) of the individuals were accepted as negative for any allergen. Of the 160 patients with positive test results, 68 had sensitivity to one allergen while 92 had sensitivity to more than one allergen. Of the 160 patients with sensitivity, 70 were children (52 boys and 18 girls) with a mean age of 8.2±3.8 (2–16). Forty-eight of these 160 patients were adult males with a mean age of 45±15 (17–76) and 42 were adult females with a mean age of 40.3±12.1(18–85). The prevalence of sensitivity to allergens was 26.3% in children while it was 27.1% in adults. When the results were examined in terms of gender, 32.9% of boys,

16.7% of girls, 40.3% of adult males and 19.7% of adult females had sensitivity to allergens. In the present study, there was no difference in allergy prevalence in terms of age ($p> 0.05$). No statistically significant difference was found between the adult and child groups for allergen sensitivity ($p> 0.05$). When a comparison in terms of gender was performed, a higher prevalence of sensitization was observed among male adults and boys and the difference was statistically significant ($p< 0.05$). The sensitivity prevalences according to gender and age are presented in table 1.

The sIgE mixed tests performed in our study, the allergen sensitivity, and the prevalence of allergy in our region according to sIgE mixed test results are presented in table 2.

According to single sIgE test results, the most common allergen among grass and weed pollens was ambrosia trifida (31.6 %), followed by sorghum halpense (17.8%); the most common allergen among tree pollens was elm (27.6 %) followed by cedar (26.7 %); the most common allergen among food was hazelnut (18.5 %) followed by walnut, strawberry, and melon (16.7 %); the most common allergen among animal epithelium and hairs was cow epithelium (17.4 %) followed by cat epithelium and hair (16.7 %); the most common allergen among mites was

Table 1. The prevalance of allergic sensitization according to age and gender

	Girl n (%)	Boy n (%)	Female n (%)	Male n (%)	Total
Total number (%)	108 (18.1 %)	158 (26.4 %)	213 (35.6 %)	119 (19.9 %)	598
Allergy (+)	18 (11.25 %)	52 (32.5 %)	42 (26.25 %)	48 (30 %)	160
Allergy(-)	90 (20.5 %)	106 (24.25%)	171 (39%)	71 (16.25 %)	438
Allergy (+) among the group	18/108 (16.7 %)	52/158 (32.9 %)	42/213 (19.7 %)	48/119 (40.3 %)	160 (26.8 %)

Table 2. The allergen sensitivity and the prevalance of allergy in Isparta/Turkey according to sIgE mixed test results

Specific IgE (mixed)	Prevalance of allergy (%)	Positivity/number of the individuals tested
FX 5	19 %	4/21
GX1	18.2 %	12/66
WX1	16.9 %	81/478
FX 20	11.7 %	53/453
TX4	11.4 %	55/480
FX 15	10.7 %	6/56
HX2	9.8 %	7/71
FX 26	9.4 %	38/402
GX2	7.7 %	1/13
EX1	6.3 %	30/477
FX 8	5.4 %	14/260
MX1	3.2 %	15/467

FX 5 (egg white, milk, fish, wheat, hazelnut, soya bean), GX1(Dactyirs glomerata, festuca elation, lolium perene, phleum pratense, poa pratensis), WX1(ambrosia elatior, artemisia vulgaris, plancato lanceolata, cheropadium album, salsola kali), FX 20 (wheat, rye, barley, rice), TX4 (quercus alba, ulmus americana, platanus acerifolia, salix caprea, populus deltoides), FX 15 (orange, apple, banana, peach), HX2 (Hollister-stler labs, Dermatophagoides pteronyssinus, Dermatophagoides farinae, Blatella germanica), GX2(cynadon dactylon, lolium perene, phleum pratense, poa pratensis, sorghum halpense, paspalum notatum), EX1 (cat dander, horse dander, cow dander, dog dander), FX 8(hazel nut, brazil nut, orange, apple, cacao), MX1 (Penicillium chrysogenum, Cladosporium herbarum, Aspergillus fumigatus, Alternaria alternata)

Acarus siro (11.5 %) followed by D. farinae (11.1%); the most common allergen among microorganisms, parasites, and bee venoms was honey bee (31.2 %) followed by echinococcus (11.1 %); and the most common drug allergen was pen G (4.2 %). The prevalence of allergy and distribution of allergens according to single sIgE test results in our region are given in table 3.

Discussion

The risk factors for allergic diseases have not been investigated adequately in the Turkish population and the present research is limited to a few studies focusing on certain occupations.2 Genetic factors are not sufficient to explain the increase in the prevalence of allergic disease both in our country and globally. Today, the most commonly suspected explanation for the increase is rapidly evolving environmental factors [1,9,10]. Although living in rural or urban areas are well known factors, there is not a consensus on this issue [2]. While some studies from Europe report that allergic diseases and asthma are more prevalent in urban areas than in rural areas, some other researchers claim that there is not a certain association [2,11,12]. Since Turkey has varying climate conditions and vegetation in its different geographic regions, it is expected that the type, density, and variability of pollens in the atmosphere exhibit regional differences. Therefore, multicentered studies are required to determine the prevalence of allergic diseases and allergic sensitization in Turkey.

Specific IgE levels increase after exposure to allergens and decrease with distance from allergens [13]. The existence of sIgE proven by either skin prick tests or immunoassays should be substantiated by anamnesis and clinical status [6]. As in our study, screening the cases with probable allergic etiology by sIgE tests provides information about which allergens people are exposed to in a given area.

In our study, the rate of sIgE positivity was 26.3% (70/266) in children and 27.1% (90/332) in adults and there was no statistically significant difference between child and adult groups ($p > 0.05$). The allergen sensitivity rate was 32.9% in boys, 16.7% in girls, 40.3% in adult males, and 19.7% in adult females. There were statistically significant higher rates of allergen sensitivity in boys compared to girls and in adult males compared to adult females ($p < 0.05$). The data we have gained is an indication that allergic etiology should be considered and tested for when encountered in boys or adult male patients in Isparta and its environs. These rates vary according to studies from both our country and abroad. In a study from Mersin, hypersensitivity positivity rate was 47.8% in adult females, 43% in adult males, 74.8% in boys and 39.6% in girls. The sensitivity rates were as follows: 23.6% for mites, 22.4% for weeds, 16.6%, for animal epithelia, 11.6% for mold, 10.1% for trees, 7.9% for food, and 7.6% for wild grass [14]. In a study from Malatya, the positivity rate was 64.3% in adults and 44.2% in children. İn the same study, the sensitivity rate to single allergens was reported to be 17.7- 28.3% in children and 20.1- 42.0% in adults [15].

According to sIgE test results, the most common allergen among grass and weed pollens was ambrosia trifida (31.6%), among tree pollens was elm (27.6 %), among food was hazelnut (18.5%), among animal epithelium and hair was cow epithelium (17.4%), among mites was Acarus siro (11.5%), among microorganisms, parasites, and bee venom was honey bee (31.2%), and among drugs was pen G (4.2%). Testing those parameters for which higher rates of sensitivity have been defined would make diagnoses easier and screenings more effective in the management of patients with suspicion of allergic etiology in our region.

In another study from Isparta, skin prick test results of 554 cases with prediagnosis of allergic rhinitis were examined and a positivity rate of 82% was found. The sensitivity rates to grass-mix, weed-mix, house dust mites, and tree-mix were 70.5%, 45.9%, 35.6%, and 25.1% respectively. The higher rates of allergy positivity in this study may be due to selection of a special patient group [16].

Both in Turkey and in other countries, allergy positivity rates vary by region. In a study from Kayseri, there was positivity of 20.1% in sIgE mixed tests and 34.8% in single sIgE tests. The highest positivity rate was in the child panel and for wild weed; the highest positivity rate in single tests was detected as D. pteronyssinus followed by D. farinae, oat, corn and barley [17]. The frequency of allergic sensitization to food was observed to be between 6.6 % and 23.6 % in a study conducted in different regions of Europe; hazelnut (9.3%), peach (7.9%), and apple (6.5%) were found to be the most common food allergens [18]. In a study from China, while D. pteronyssinus and D. farinae

Table 3. The prevalance of allergy and distribution of allergens according to sIgE (single) test results

Food	Grass and weed pollens	Tree pollens	Animal epithelium and hairs	Mites	Microorganism/ Parasite/ insects	Drugs
Hazelnut	A. trifida	Elm	Cow epihtelium	Acarus siro	Honey bee	Penicillin G
18.5 % (12/65)	31.6 % (6/19)	27.6 % (8/29)	17.4 % (4/23)	11.5 % (3/26)	31.2 % (5/16)	4.2 % (1/24)
Walnut	S. halpense	Sycamore	Cat epithelium and hair	D. farinae	Echinococcus	Ampicillioly
16.7 % (9/54)	17.8 % (5/28)	26.7 % (4/15)	16.7 % (4/24)	11.1 % (3/27)	11.1 % (1/9)	0 % (0/21)
Strawberry	P. lanceolata	Poplar	Dog epithelium	D.pteronyssinus	Yellow hornet	Amoxicilloly
16.7 % (1/6)	15.8 % (3/19)	26.3 % (5/19)	12.5 % (2/16)	10.7 % (3/28)	7.7 % (1/13)	0 % (0/20)
Melon	P. communis	Cypress	Dog hair	G.domesticus	P. notatum	Penicillin V
16.7 % (9/54)	15.8 % (3/19)	25 % (2/8)	8.7 % (2/23)	9.5 % (2/21)	0 % (0/18)	0 % (0/15)
Tomato	P. pratense	Cedar	Goat epithelum		A. alternata	
15.8 % (10/63)	15.4 % (4/26)	22.7 % (5/22)	6.7 % (1/15)		0 % (0/17)	
Gluten	A. odorat	Oak	Chicken hair		C. albicans	
12.3 % (7/57)	14.3 % (4/28)	20.7 % (6/29)	0 % (0/16)		0 % (0/15)	
Orange	C. dactylon	Birch	Canary hair		A. fumigatus	
11.7 % (7/60)	13.8 % (4/29)	17.4 % (4/23)	0 % (0/14)		0 % (0/15)	
Banana	L. perene	White pine	Sheep epithelium		C. herba.	
10 % (2/20)	13.3 % (2/15)	17.4 % (4/23)	0 % (0/14)		0 % (0/15)	
Wheat	P. pratensis	Willow			Ascaris	
10 % (1/10)	11.5 % (3/26)	15.8 % (3/19)			0 % (0/10)	
Cakao	A. elatior	Mulberry			Staph enterotoksin A	
8.3 % (1/12)	10 % (1/10)	13.6 % (3/22)			0 % (0/9)	
Goat milk	H. lanatus	Pine			P. orbi	
7.7 % (3/39)	8.3 % (2/24)	8.3 % (1/12)			0 % (0/9)	
Cultivated mushroom	S. cereale	Walnut tree			Mucor	
7.7 % (4/52)	7.4 % (2/27)	8.3 % (1/12)			0 % (0/9)	
Egg yolk	A. vulgaris	Acacia			Staph enterotoksin B	
6.7 % (3/45)	0 % (0/21)	0 % (0/5)			0 % (0/8)	
Egg white					Yellow jacket	
6.2 % (5/80)					0 % (0/4)	
Total egg						
5.9 % (1/17)						
Cow milk						
5 % (1/20)						

were found to be the most common aeroallergens, egg and cow milk were reported to be the most common food allergens [19]. In a study from Vietnam, allergic sensitization was observed in 36.9% of the males and 31% of the females and the most common allergens were B. tropicalis, D. pteronyssinus, D. Farinae and cockroaches [20]. In a study from Brazil, allergic sensitization rates for some foods were as follows: 29.5% for fish, 24.4% for egg, 23.1 % for cow milk, 20% for wheat, 14% for peanut, and 4.8- 11.8 % for soybean [21]. In another study from Korea, allergic sensitization rates for some foods were as follows: 51.5% for egg, 31.2% for cow milk, 16.2% for peanut, and 15.4% for soybean [22]. These studies have revealed different sensitization rates in different regions. Accordingly, determining the most likely allergens for certain regions would provide us with target-driven tests, preventing unnecessary costs.

Consequently, we are of the opinion that detailed sIgE analyses from similar studies would enable us to determine those precise factors related to allergic diseases that would be most beneficial for the mapping of allergy frequency and allergen sensitivity in Turkey, which is increasing significantly day by day.

Competing interests

The authors declare that they have no competing interests.

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The Significance of Mean Platelet Volume in Acute Pancreatitis

Akut Pankreatitte Ortalama Platelet Hacimlerinin Önemi

MPV and Acute Pancreatitis

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Özet

Amaç: Akut pankreatit, önemli komplikasyonlar ve yüksek mortalite ile seyredebilen bir hastalıktır. Pankreasta normalde inaktif halde bulunan sindirim enzimlerinin aktif hale geçerek pankreas dokularını sindirmesi ve buna bağlı ortaya çıkan inflamasyonla karakterize bir hastalıktır. Çalışmamızda; acil servise karın ağrısı şikayeti ile başvurup Akut Pankreatit tanısı alan hastalarda Ortalama Trombosit Hacmi oranlarının seyrini izlemeyi amaçladık. Gereç ve Yöntem: Çalışmamız acil servise karın ağrısı şikayeti ile başvurup Akut Pankreatit tanısı alan hastalarda üzerinde yapıldı. Çalışmaya toplam 104 hasta dahil edildi. Hastaların Akut Pankreatit tanısı konulduktan ve tam iyileşme sağlandıktan sonraki Ortalama Trombosit Hacmi, Lökosit ve Lipaz değerlerine bakıldı. Bu değerler karşılaştırıldı. Ayrıca, hastaların akut pankreatit tanısı konulduktan ve tam iyileşme sağlandıktan sonraki Ortalama Trombosit Hacmi, Lökosit ve Lipaz değerleri kaydedildi. Bulgular: Çalışmaya alınan 104 akut pankreatitli hastanın hastalık esnasında ve hastalık tamamen düzeldikten sonraki Ortalama Trombosit Hacmi, Lökosit ve Lipaz değerleri istatistiksel olarak karşılaştırıldı. Ortalama Trombosit Hacmi, Lökosit ve Lipazın başvuru esnasındaki değerleri hastalık sonrasına göre yüksek tespit edildi. Tartışma: Ortalama Trombosit Hacmi, Akut Pankreatite yükselen bir belirteçtir. Akut Pankreatit tanısının erken konulmasında ve hastalığın seyrinde faydalı olabileceğini düşünüyoruz.

Anahtar Kelimeler

Akut Pankreatit; Ortalama Trombosit Hacmi; Lökosit; Lipaz

Abstract

Aim: Acute pancreatitis is a high-mortality disease carrying significant risk of complications and characterized by intra-acinar cell activation of digestive enzymes, followed by a subsequent response via the release of proinflammatory cytokines. Here, we aimed to investigate the development of mean platelet volume in patients diagnosed with acute pancreatitis. Material and Method: The study was performed in patients admitted to the emergency room with the complaint of abdominal pain and diagnosed with acute pancreatitis. A total of 116 patients were included in the study. Mean platelet volume, leucocytes or white blood cells and lipase values were investigated and compared after all patients had been diagnosed with acute pancreatitis and regained good health. Also, the values of mean platelet volume, white blood cells and lipase were recorded twice for these patients. Results: After diagnosis and complete treatment, the mean platelet volume, white blood cells and the lipase values of 116 acute pancreatitis patients were statistically compared it was found that the values on admission were higher than after the treatment. Discussion: Mean platelet volume is an indicator that increases in acute pancreatitis so, we consider that mean platelet volume may be beneficial in the diagnosis and in monitoring the course of acute pancreatitis.

Keywords

Acute Pancreatitis; Mean Platelet Volume; Leucocyte; Lipase

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Introduction

Acute pancreatitis (AP) is a condition that may also have an effect on tissues outside of the pancreas (1) and is an inflammatory process of the pancreas, advancing with an increase in enzymes such as amylase and lipase, and with abdominal pain. Because of diagnoses followingdeath or ignorance of the diagnostic process, accurate incidence rates of AP remain unknown, but the incidence of AP is accepted as5–35/100,000 (2).

An association was found between thrombocyte activation and many diseases developing with thrombosis and inflammation(3). Mean platelet volume (MPV) is an indicator determined by an automated blood count device as part ofa complete blood count, but is generally neglected by medical professionals. MPV was found to be associated with mean thrombocyte volumeand the function and activation of thrombocytes (4,5). It has been suggested that as the number of thrombocytes is generally decreased, MPV is increased, and large thrombocytes are younger and more reactive. MPV is one of the most widely used surrogate markers of platelet function and has been shown to reflect inflammatory burden and disease activity in several diseases including pre-eclampsia, acute appendicitis, unstable angina, myocardial infarction, and systemic inflammation such as ulcerative colitis and Crohn's disease (6,7). Studies related to the development of MPV in AP are present in the literature (8,9). In this studywe aimed to investigate the development of MPV values in AP patients both during the disease and after complete healing. We also investigated the course of lipase and leucocyte values with MPV, and the correlation between these values.

Material and Method

Admitted to the emergency room of Konya Training and Research Hospital, Baskent University and diagnosed with AP between March 2012 and April 2014, 116 patients were retrospectively investigated. Among the patients admitted to the emergency, those diagnosed with AP via clinical, laboratory, and radiological tests were included in the study. Those with a history of oncologic diseases, iron deficiency anemia, conditions developing with thrombocytopenia, thrombocytosis, or thalassemia, a history of metabolic diseases,orinflammatory bowel disorder were excluded from the study. Additionally, all patients were assessed according to severity classification using the Ranson's criteria; a total of 55 patients with mortality or the features of a severity classification were excluded, while those with mild to moderate severe pancreatitis (edematous and interstitial types) were included in the study. Blood samples were drawn for MPV, leucocyte count or white blood cells (WBC), and lipase from 116 patients with AP. The patients were referred to the department of gastroenterology to commence treatment. According to the standard treatment modality, intravenous fluid resuscitation, electrolyte replacement, and analgesics were administered to all patients. For those with nausea and vomiting, nasogastric drainage was performed to prevent aspiration into the respiratory tract. Total parenteral nutrition (TPN) was started to support the patients nutritionally, and antibiotherapy was started to prevent septic complications. In addition to these treatment regimes, various therapeutic methods (such as endoscopic retrograde cholangiopancreatography (ERCP) were performed due to parenchymal injuries and other complications in the pancreas to decrease mortality rate. The patients began oral feeding 5-10 days later and improvements as measured by clinical, radiological, and laboratory tests were monitored. After observing improvements, blood samples were obtained from 116 patients to evaluate the MPV, WBC, and lipase values.

Laboratory measurements

For the measurements of MPV and WBC values, an electronic routineblood count device was used (Cell-Dyne 3700, Abbott, Abbott Park, IL, USA). Routine biochemistry kits were utilized for the measurement of lipase. As expected, the results of our laboratory tests for MPV values ranged from7.0 to 12.0 fl.

Statistical analysis

Accumulated data were registered into previously prepared forms, and the statistical analyses were performed via SPSS 15.0 package. The data were analyzed as to appropriateness for normal distribution. For comparisons, the student's t and paired t tests were performed in dependent groups. Numeric values were defined as mean±standard deviation, and $p<0.05$ was accepted to be significant. While performing our analysis, we evaluated the difference between the two groups. In other words, the correlation between MPV1 during the disease period and MPV2 after amelioration was assessed in our study.

Results

Admitted to the emergency room, a total of 116 patients hospitalized in the emergency department of our hospital from March 2012 to April 2014 due to the diagnosis of AP were included into the study. Of these patients, 65 were men (56.03%) and 51 were women (43.97%). The mean age rate was detected as 61.2±3.6. In their etiology, 94 patients (81.03%) were seen to have biliary causes of AP. Twenty-two patients (18.96%) were aged 70 or over. While the mean lipase value was 1865.9±2473.6 U/L in the acute phase, it was found to be196.3±64.3 U/L in the post-disease phase. When compared, this rate was evaluated to be statistically significant ($p<0.05$). In terms of mean WBC values, while the rate was found to be17.74±4.85/mm3 in the acute phase, it was determined to be 8.03±1.72/mm3 after the disease period; these rates were also accepted asstatistically significant ($p<0.05$). Another statistically significant rate was related to mean MPV values ($p<0.05$), found to be7.97±1.08 fL in the acute phase and detected as 6.95±0.80 fL after amelioration (Table 1).

In the patient group, the correlations between MPV, WBC, and lipase were evaluated, and a moderate correlation was found between MPV and lipase and MPV and WBC, although no correlation was detected between MPV1 and MPV2 values (Table 2).

Table 1. Labaratory value of patients with AP

	AP (n=116)	Post treatment	p value
Lipase (U/L)*	1865.9±2473.6U/L	196.3±64.3 U/L	<0.001
WBC(X103 /mm3)*	17.74±4.85	8.03	0.005
MPV (fL)*	7.97±1.08	6.95±0.80	0.003

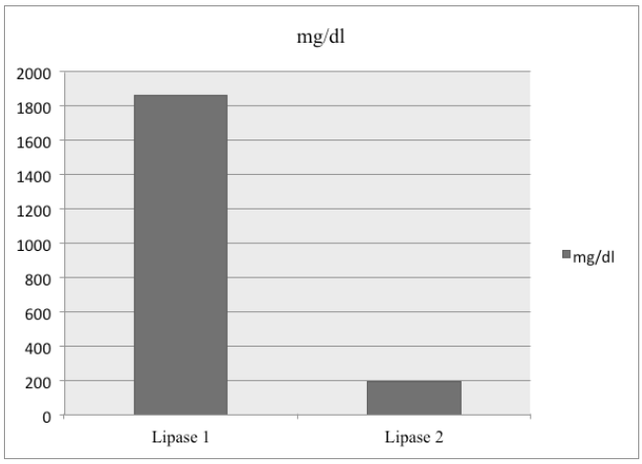
*Mean±standard deviation values, WBC: white blood count, MPV: mean platelet volume

Table 2. Correlation of MPV values between lipase and WBC in AP patients

Parameters	Correlation value (r)	p value
MPV 1-WBC 1	0.34	0.001
MPV 1-Lipase 1	0.56	<0.001
MPV 1-MPV 2	0.003	0.974

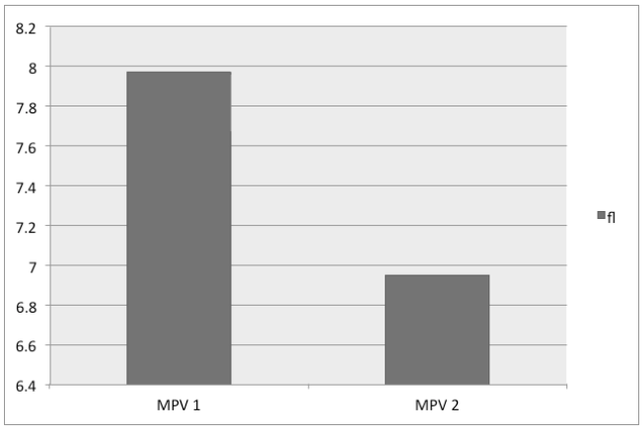
WBC: white blood count, AP: acute pacreatitis, MPV: mean platelet volume

Figure 1. Comparison of lypase values during AP treatment (Lipase 1) and after AP treatment (Lipase 2)



AP: acute pacreatitis

Figure 2. Comparison of MPV values during AP treatment (MPV 1) and after AP treatment (MPV 2)



AP: acute pacreatitis, MPV: mean platelet volume

Discussion

AP is an important gastroenterological emergencywith high-rates of morbidity and mortality, requiring long hospital stays and with the possibility of several local and systemic complications (10). Early diagnosis and classification are of vital importance, both before and after the development of severe AP (11). However, a reliable laboratory test that diagnoses AP accurately and that can inform boththe early diagnosis and determination of the condition's etiology has yet to be found (12). Available studies are mostly related to the determination of secondary inflammation. Levels of blood and urine amylase, serum lipase, serum elastase 1, serum trypsin, serum phospholypase A2, C-reactive protein, interleukin 6-8, and procalcitonin may be observed as increased in AP cases (13,14). In this study, we aimed to monitor the course of MPV, as well as WBC and lipase, during and after diagnosis of AP.

Various factors are present in the etiology of AP.Gallbladder issues and alcohol consumption are amongthe responsible factorsin 90% of cases. Among those other factors leading to AP, an increase in cholesterol level, pancreatic tumors, abdominal trauma, drugs, hypothermia, infections, ERCP, or surgical interventions are reported. In 10% of patients, however, no reasons that might causeAP are determined(15,16). As consistent with findings in the literature, biliary reasons leading to AP were witnessed in 81.03% of the patientsin our study.

In a study where the literature was reviewed by DiMagno et al.(17), AP was reported to be most frequently seen in the patients' 60's. Consistent with this finding, the mean age in our study was 61.2±3.6.

Because the clinical presentation of AP exhibits changeable features and there are factors restricting diagnostic procedures, sometimes difficulties may occur in the diagnosis of AP. Different parameters are used in the diagnosis and follow-up of AP. Levels of blood and urine amylase, serum lypase, serum elastase 1, serum trypsin, serum phospholypase A2, C-reactive protein, interleukin 6-8, and procalcitonin may be increased in cases of AP. The increase seen in serum lipase is more specific, compared with that in amylase. Because the increase in serum lipase continues longer than that of serum amylase, serum lipase is a more beneficial parameter in patients clinically diagnosed late. Additionally, serum lipase may also increase in such diseases as acute cholecystitis, peptic ulcer perforation, and mesentric embolism (13). In the diagnosis of lipase-suspected AP cases, amylasin is known as the first step treatment option (18). Also in our study, lipase values were developed at higher levels than normal during AP.

AP is a disease that developswith inflammation of the pancreas as a result of the activation of enzymes of acute pancreatitis, and levels of WBC are seen as increased in such an inflammatory condition. Further, the rate of WBC>16.000/ml isa component of the Ranson's criteria and is an important marker in the determination of prognosis and the severity of AP (19). As consistent with the literature, in our study, WBC progressionalso increased during AP.

MPV is an easily measured value and a useful marker for thrombocyte function and activity. High levels of MPV usually indicate thrombocyte activity and the existence of large young thrombocytes, which are metabolically more active (4,20). It is accepted that there is an association between inflammation and thrombocytes. Active platelets play a key role in both inflammation and thrombosis. Hematology analyzers measure this activity with different indicators, and MPV is also one of these indicators (21,22). MPV is a cost-effective and cheap parameter showing platelet function and activation, which may be demonstrated in whole blood count and affected by inflammation (23). For example, the values of MPV are affected by inflammation and acute cholecystitis (24).

In the literature, a few studies follow the course of MPV in patients with AP. In one of these studies, MPV values were detected to progress at a higher rate in AP patients compared to controls. The same study also emphasized that MPV has a positive correlation with other pancreatic enzymes (8). In another study, MPV values were detected to be higher in severe AP, and

it was considered that MPV may be a valuable marker for the prognosis of AP. Another finding was that MPV values also decreased after treatment (9).

However, in our study, MPV values displayed a higher progression in AP patients, as is consistent with literature. After the patients regained good health, MPV values were observed at normal levels, even more decreased in the patients A positive correlation was also detected between MPV values and lipase, a trypsinogen ezyme, and WBC, an indicator of inflammation.

Conclusion

In conclusion, MPV may be a beneficial marker in conjuction with others in the early diagnosis of AP in emergency rooms. Further studies with larger sample sizes are needed to support our findings.

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Competing interests

The authors declare that they have no competing interests.

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Evaluation of Electrocardiographic T-Peak to T-End Interval in Patients with Cardiac Syndrome X

Kardiyak Sendrom X Hastalarının Elektrokardiografik Olarak T-Peak to T-End İntervalinin Değerlendirilmesi

Cardiac Syndrome X, Tpe Interval

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Özet

Amaç: Metabolik sendrom X (MSX) ile aritmi ilişkisi örneğin atrial fibrilasyon, daha önceki çalışmalarda gösterilmiştir. Bu çalışmada kardiyak sendrom X (KSX) hastalarında ventriküler repolarizasyon parameterlerinden Tp-e interval and Tp-e/QT oranı değerlendirildi. Gereç ve Yöntem: Çalışmaya 65 hasta alındı. Efor testi pozitif veya şüpheli miyokard sintigrafisi olan ve koroner arter hastalığı şüphesi olanlara koroner anjiografi yapıldı. KSX tanısı konan 35 hasta grup 1, normal koroner arter arter tanısı konan 30 hastada grup 2 olarak tanımlandı. QT parametreleri, Tp-e intervals and Tp-e/QT oranları ölçüldü. Bulgular: Tp-e interval (83.4 ± 6, 75 ± 5, p<0.001), cTp-e interval (89.9 ± 9.8 vs 84.9 ± 7.5, p =0.03), Tp-e/QT (0.21 ± 0.02 vs 0.20 ± 0.01, p = 0.003) and Tp-e/QTc oranları (0.20 ± 0.02 vs 0.17 ± 0.01, p < 0.001) grup 1 ,grup 2 den fazla bulundu. PW kalınlığı ve Tp-e interval (r = 0.308, p < 0.01) , IVS kalınlığı ve Tp-e/QTc oranı (r=0.236 p=0.05) arasında pozitif korelasyon izlendi. Bulgular: Bu çalışmada KSX hastalarında Tp-e ,cTp-e interval, Tp-e/QT ve Tp-e/QTc oranı artmış bulundu. Buda ventriküler aritmi risikini artırabilir.

Anahtar Kelimeler

Kardiyak Sendrom X; TP-E İnterval; TP-E/QT Oranı

Abstract

Aim: The relationship between metabolic syndrome X (MSX) and atrial arrhythmia such as atrial fibrillation (AF) has been shown in previous studies. The aim of this study was to evaluate ventricular repolarization by using Tp-e interval and Tp-e/QT ratio in patients with cardiac syndrome X (CSX). Material and Method: A total of 65 consecutive subjects were included in the present study. Diagnostic coronary angiography was performed on patients who had a positive stress test and suspected myocardial scintigraphy or coronary artery disease (CAD). 35 patients who were diagnosed as having CSX (Group I) and 30 patients with normal coronary angiograms (Group II) were included in this study. QT parameters, Tp-e intervals, and Tp-e/QT ratio were measured from the 12-lead electrocardiogram. Results: The Tp-e interval (83.4 ± 6 vs. 75 ± 5, p<0.001), cTp-e interval (89.9 ± 9.8 vs. 84.9 ± 7.5, p=0.03), Tp-e/QT (0.21 ± 0.02 vs. 0.20 ± 0.01, p=0.003), and Tp-e/QTc ratio (0.20 ± 0.02 vs 0.17 ± 0.01, p<0.001) were higher in Group I than in Group II. Significant positive correlations were found between PW thickness and the Tp-e interval (r=0.308, p<0.01) and between IVS thickness and the Tp-e/QTc ratios (r=0.236, p=0.05). Discussion: The present study shows that Tp-e and cTp-e interval, Tp-e/QT, and Tp-e/QTc ratios were higher in subjects with CSX, which may suggest an increased risk of ventricular arrhythmia.

Keywords

Cardiac Syndrome X; TP-E Interval; TP-E/Qt Ratio

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Introduction

Cardiac syndrome X (CSX) is characterized by angina-like chest pain with a positive exercise stress test and myocardial perfusion scintigraphy (MPS), but where coronary arteries are detected to be normal [1]. The pathophysiology of CSX is not clearly defined. Coronary microvascular dysfunction, systemic inflammation, and arteriosclerosis of the small coronary vessel may be the principal causes of CSX [2-3].

QT interval (QT), corrected QT interval (QTc), QT dispersion, and transmural dispersion of repolarization are generally used for the evaluation of myocardial repolarization. Tp-e, which is the interval between the peak and the end of T wave as shown in an electrocardiogram (ECG), is accepted as an index of transmural dispersion of ventricular repolarization [4]. However, it is affected by variations in heart rate and body weight. Tp-e/QT and Tp-e/QTc ratios have been suggested as more accurate measures for the dispersion of ventricular repolarization compared to others parameters, and are independent from heart rate alterations [5-6].

Previous studies have consistently shown an association between metabolic syndrome X (MSX) and atrial arrhythmia such as atrial fibrillation (AF) [7-9]. However, there is not much data regarding the association between CSX and ventricular arrhythmia. Therefore, we aimed to evaluate the possible relation between CSX and ventricular repolarization, which is an indicator of risk of ventricular arrhythmia.

Material and Method

Study population

A total of 65 subjects were included in the present study. Diagnostic coronary angiography was performed on patients who had a positive stress test and suspected myocardial scintigraphy or coronary artery disease (CAD). 35 patients who were diagnosed as having CSX at coronary angiography (Group I) and 30 patients with normal coronary angiograms (Group II) were included in this study. Patients with coronary atherosclerosis, those with acute coronary syndromes, left ventricular systolic dysfunction (LVEF <50%), significant valvular heart disease, renal failure (creatinine-based estimated GFR <90 mL/min/1.73 m2 calculated by the Cockcroft-Gault formula), bundle branch block and atrioventricular conduction abnormalities on the electrocardiography (ECG), thyroid dysfunction, pulmonary disease, chronic infections or inflammatory diseases, electrolyte imbalance, and those with ECGs without clearly analyzable QT and Tp-e intervals were excluded from the study. All the patients were in sinus rhythm, and none of them was taking antiarrhythmic medications, tricyclic antidepressants, antihistamines, or antipsychotics. The study was approved by the local ethics committees and adhered to the Declaration of Helsinki, and all subjects gave written informed consent.

Coronary angiography

All patients underwent coronary angiography with Judkins technique and femoral approach. Images were recorded using a digital angiographic system (ACOM.PC; Siemens AG, Germany) at a speed of 15 frames/second. Lopromide (Ultravist 370, Schering AG, Berlin, Germany) was used as contrast material. The cine-angiograms were evaluated by two independent cardiologists. Quantitative measurements of the coronary arteries were performed using the digital angiographic system (ACOM. PC; Siemens AG, Germany).

Electrocardiography and calculation of ventricular repolarization parameters

The 12-lead ECG recording was performed after 10 minutes of rest in the supine position at 50 mm/s speed and 20 mm/mV amplitude (Nihon Kohden, Tokyo, Japan). ECG measurements of QT and Tp-e intervals were performed by two cardiologists who were blinded to the patient data. In order to lessen errors in QT and Tp-e interval analyses, each interval was measured manually with calipers and a magnifying glass. In order to improve accuracy, the average value of three readings was used. We measured the QT interval from the beginning of the QRS complex to the end of the T wave. The QT maximum (QTmax) and QT minimum (QTmin) were calculated in all leads of a 12-lead ECG. QTd was defined as the maximum minus minimum QT interval and corrected QTd (cQTd) was calculated according to Bazett's Formula adjusted according to heart rate [10]. QT peak interval was defined as the time from QRS complex onset to the peak of the T wave, whereas Tp-e interval was defined as the time from the peak to the end of the T wave. The measurements of Tp-e interval were performed from precordial leads and were corrected according to heart rate [11]. The Tp-e/QT ratios were subsequently calculated (Figure 1).

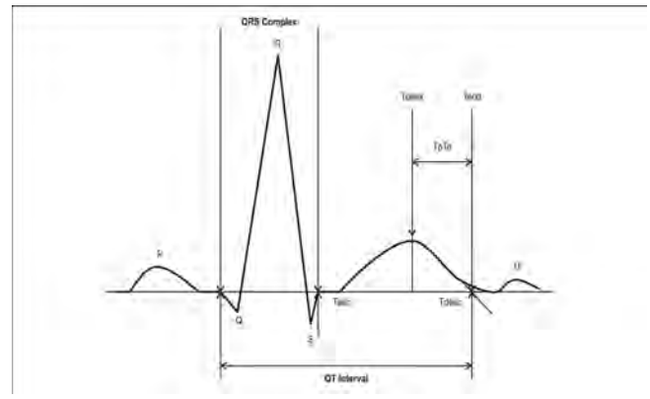

Figure 1.

The reproducibility of ECG repolarization indices was assessed by coefficients of variation (standard deviation of differences between the repeated measurements divided by the mean value and expressed as a percentage) between measurements. The intra-observer variability was calculated in 34 randomly selected study participants (18 patients with CSX and 16 control subjects) by repeating the measurements under the same basal conditions. Intra-observer and inter-observer variation was found to be <5%.

Standard echocardiography

Transthoracic echocardiography was performed in all patients at the left lateral decubitus position with a GE Vingmed Vivid 7 (GE Vingmed Ultrasound, Horten, Norway) echocardiography device. Images at the parasternal longitudinal axis, short axis, apical four chambers, and two chambers were obtained and evaluated by M-mode, 2-D, continuous wave Doppler, and

pulsed wave Doppler methods based on American Echocardiography Association criteria [12]. The following two-dimensional echocardiographic parameters were measured: left ventricular end-diastolic diameter (LVEDD, mm), left ventricular end-systolic diameter (LVESD, mm), left ventricular ejection fraction (LVEF, %), left atrium (LA), interventricular septum (IVS), and posterior wall (PW). The LVEF was estimated using Simpson's rule. Values were measured on three separate beats and then the averages were calculated for all parameters.

Statistical analysis

SPSS 17.0 statistical program (SPSS Inc., Chicago, IL, USA) was used for the statistical study. All parametric values were shown as means with standard deviation. Continuous variables were compared between groups using the Student's t test or Mann-Whitney U test, according to whether they were normally distributed or not as tested by the Kolmogorov-Smirnov test. The chi-square test was used to assess differences between categorical variables. Pearson's correlation analysis was used to examine possible associations between CSX and ventricular repolarization parameters. A p value of less than 0.05 was considered significant.

Results

Baseline clinical, demographic, and echocardiographic parameters of the study participants are listed in Table 1. Age, gender, smoking status, HT, and dyslipidemia were similar between the two groups, as were LVEDD, LVESD, and LVEF. Body mass index, LA diameter, IVS, and PW were significantly higher in Group I compared to Group II.

Table 1. Baseline characteristics and echocardiographic parameters of the study population

Variable	Patients	Controls	P value
Age, years	56.7 ± 6.1	59.6 ± 6.7	0.08
Gender, female/male	15/20	12/18	0.816
BMI,kg/m2	27.7 ± 3.3	26.2 ± 1.4	0.027
Dyslipidemia, n (%)	18(%51)	17(%56)	0.673
Hypertension, n (%)	24(%68)	18(%60)	0.471
Diabetes mellitus	8(%22)	6(%25)	0.780
Smokers, n (%)	19(54)	13(%43)	0.379
LVEDD, mm	45.7 ± 3.7	46.8 ± 2.3	0.179
LVESD, mm	30.1 ± 2.9	29.5 ± 2	0.322
LA,mm	37.3 ± 3.6	34.7 ± 2.1	0.01
IVS,mm	11.7 ± 1.2	9.9 ± 0.9	<0.001
PW,mm	10 ± 1	8.9 ±0.7	<0.001
LVEF, %	57.5 ± 1.9	56.6 ± 1.9	0.066

BMI, body mass index; IVS,intraventricular septum; LA,left atrium;LVEDD, left ventricular end-diastolic diameter; LVEF, left ventricular ejection fraction; LVESD, left ventricular end-systolic diameter; PW:posterior wall

The electrocardiographic parameters of the groups are shown in Table 2. The heart rates were different between the two groups (70.3 ± 9.9 vs. 79.6 ± 11.4, p=0.01). The QTmax (378 ± 23 vs. 372 ± 25ms, p=0.33), QT min (341 ± 22 vs. 334 ± 26ms, p=0.386), QTd (36 ± 5.8 vs. 35.8 ± 6, p=0.528), and corrected QTd (37.9 ± 6.5 vs. 40.9 ± 7.3, p=0.091) were not different between the two groups. The cQTmin (364 ± 25 vs. 386 ± 23ms, p=0.01) and cQTmax (403 ± 26 vs. 424 ± 28ms, p=0.03) were significantly higher in Group II than in Group I. The Tp-e interval (83.4 ± 6 vs. 75 ± 5, p<0.001), cTp-e interval (89.9 ± 9.8 vs. 84.9 ± 7.5, p=0.03), Tp-e/QT (0.21 ± 0.02 vs. 0.20 ± 0.01, p=0.003), and Tp-e/QTc ratios (0.20 ± 0.02 vs. 0.17 ± 0.01, p<0.001) were higher in Group I than in Group II. Significant positive correlations were found between PW thickness and the Tp-e interval (r=0.308, p<0.01) and between IVS thickness and Tp-e/QTc ratios (r=0.236, p=0.05).

Table 2. Electrocardiographic parameters of the study population

Variable	Patients	Controls	P value
HR (beat/min)	70.3 ± 9.9	79.6 ± 11.4	0.01
QTmax (ms)	378 ± 23	372 ± 25	0.33
cQTmax (ms)	403 ± 26	424 ± 28	0.03
QTmin (ms)	341 ± 22	334 ± 26	0.386
cQTmin (ms)	364 ± 25	386 ± 23	0.01
QTd (ms)	36 ± 5.8	35.8 ± 6.0	0.528
cQTd (ms)	37.9 ± 6.5	40.9 ± 7.3	0.091
Tp-e (ms)	83.4 ± 6	75 ± 5	<0.001
cTp-e (ms)	89.9 ± 9.8	84.9 ± 7.5	0.03
Tp-e/QT	0.21 ± 0.02	0.20 ± 0.01	0.003
Tp-e/QTc	0.20 ± 0.02	0.17 ± 0.01	<0.001

HR = Heart rate, QTmax = QTmaximum, cQTmax = corrected QT maximum, QTmin = QTminimum, cQTmin = corrected QT minimum, QTd = QT dispersion, cQTd = corrected QT dispersion, Tp-e = transmural dispersion of repolarisation, cTp-e = corrected transmural dispersion of repolarisation.

Discussion

We found that the Tp-e and cTp-e interval and the Tp-e/QT and Tp-e/QTc ratios were higher in patients with CSX compared with controls. Our finding of increased Tp-e, cTp-e, Tp-e/QT ratio, and Tp-e/QTc ratio in patients with CSX is important since this is the first study evaluating the relation between CSX and parameters of ventricular repolarization. Our results may contribute to understanding pathophysiological mechanisms of increased prevalence of ventricular arrhythmias in patients with CSX.

A previous study revealed that there is a relation among the slow coronary flow (SCF), Tpe interval, and Tpe/QT ratio [13]. Both CSX and SCF reported normal coronary angiography. Although similar etiological factors such as small-vessel disease, inflammation, and microvascular and endothelial dysfunction have a role, their etiopathogenesis are still not clear. Abnormalities in coronary microcirculation, such as small-vessel structural defects and microvascular resistance, are confirmed. Endothelial dysfunction and coronary micro-circular abnormalities have also been shown to be responsible for the etiopathogenesis of CSX [14-16].

MSX and CSX are two diseases with similarities. Both electrophysiological and observational studies showed a relationship between MSX and atrial fibrillation [7-8]. There is no data in these studies about the patients' coronary arteries. A few of the patients in these studies may have had CSX. Therefore, arrhythmias may be seen in patients with CSX. BMI and LA diameter are larger than the controls in our results. These findings support these two studies. Moreover, BMI doesn't affect myocardial repolarization parameters. In our study, Tpe interval and Tpe/

QT ratio are different from the controls. For this reason, ventricular arrhythmia may be seen in patients with CSX.

On the other hand, intravascular ultrasound studies reveal that coronary arteries with atheromatous plaques or abnormal coronary arteries with intimal thickening were detected in patients with CSX [17]. These findings suggest that CSX might be considered to be an early phase of atherosclerosis [18-19]. Also, previous studies showed that the Tpe/QT ratio is increased in acute myocardial infarction, and it is associated with the prognosis for patients who undergo primary percutaneous coronary intervention [20-21]. The other study showed that ischemia-induced Tpe is an important arrhythmogenic parameter after primary percutaneous coronary intervention [22]. Therefore, ischemia caused by microvascular dysfunction may be responsible for the heterogeneity of ventricular repolarization in patients with CSX.

Study limitations

We recognize that our study has limitations that warrant consideration. First, the cross-sectional design does not allow us to infer causation between CSX and ECG parameters. Second, the sample size of the study was relatively small and there was no longer-term follow up to detect any ventricular arrhythmias in patients with CSX.

Conclusion

The present study showed that the Tp-e interval and the Tp-e/QT and Tp-e/QTc ratios were elevated in patients with CSX, which might imply they are an indicator of risk of ventricular arrhythmias in this group of patients.

Competing interests

The authors declare that they have no competing interests.

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Relationship Between Bilirubin Level and Disease Activity in Crohn's Disease

Crohn Hastalığında Bilirübin Düzeyi ile Hastalık Aktivitesi Arasında İlişki

Bilirubin Level in Crohn's Disease

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Özet

Amaç: Crohn Hastalığı (CH), gastrointestinal sistemin kronik inflamatuar bir hastalığıdır. Patogenezinde; bağırsakta trnasmural inflamasyonun geliştiği bilinmektedir. Son zamanlarda, inflamasyondan kaynaklanan oksidatif stres ve iskemi ile antoksidan kapasite arasındaki dengesizlik sonucu, bağırsak hasarının oluştuğu mekanizması üzerinde durulmaktadır. Bilirübin, Heme yıkımı sonucu oluşan metabolik üründür. Artmış oksidatif streste, iskeminin şiddetine göre değişebilen kan bilirubin düzey artışları izlenmektedir. Çalışmamızın amacı CH aktivitesinin bir göstergesi olarak serum bilirubin düzeyini değerlendirmektir. Gereç ve Yöntem: Otuz adet aktif Crohn Hastalığı olan ve 66 adet sağlıklı kontroller çalışmaya dahil edildi. Klinik aktivitesi Crohn Hastalık Aktivite İndeksi (CDAI) kullanılarak belirlenmiştir. Serum bilirubin düzeyleri hastalığın aktif ve remisyon dönemlerinde kontrol grubu ile karşılaştırılmıştır. Bulgular: Total bilirubin değerleri incelendiğinde, CH olan grupta bilirubin seviyesi kontrol grubuna göre anlamlı yüksek saptanmıştır (p<0,05). Total bilirubin değeri remisyon döneminde sırasında istatiksel açıdan anlamlı azalma göstermiştir (p <0,05). Tartışma: Çalışmamız serum bilirubin düzeyinin aktif Crohn hastalarında kontrollere göre artmış olduğunu gösterdi.

Anahtar Kelimeler

Crohn Hastalığı; Bilirubin; Crohn Hastalık Aktivite İndeksi; İnflamasyon

Abstract

Aim: Crohn's disease (CD) is a chronic inflammatory disease of the gastrointestinal system. Regarding its pathogenesis, it is known that transmural inflammation develops in the bowel. In recent years, it has been considered that bowel damage occurs as a consequence of an imbalance between oxidative stress and ischaemia and antioxidant capacity. Bilirubin is the metabolic product that develops as a result of heme destruction. In oxidative stress, blood bilirubin levels increase in correlation with the intensity of ischaemia. The aim of our study was to evaluate the potential of bilirubin as a serum factor to be a marker of disease activity of CD. Material and Method: Thirty patients diagnosed with active CD and 66 healthy control subjects were involved in the study. Clinical activity was determined using the Crohn's Disease Activity Index (CDAI). Serum bilirubin levels of active disease and remission periods were compared with the control group. Results: When total bilirubin values were examined, the bilirubin level among Crohn's disease patients was significantly increased compared to the control group (p<0.05). The total bilirubin value exhibited significant alteration during the remission period (p<0.05). Discussion: Our study showed that serum bilirubin was increased in active CD patients compared to controls.

Keywords

Crohn's Disease; Bilirubin; Crohn's Disease Activity Index; Inflammation

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Introduction

Crohn's disease (CD) is a chronic inflammatory disease of the gastrointestinal system. Its etiology is multifactorial and involves genetic predisposition, immunological causes, microbial agents, and environmental factors [1]. Regarding its pathogenesis, it is known that transmural inflammation develops in the bowel. In recent years, it has been considered that bowel damage occurs as a consequence of an imbalance between oxidative stress and ischaemia and antioxidant capacity [2,3].

Bilirubin is the metabolic product that develops as a result of heme destruction. The heme-oxygenase (HO) enzyme catalyzes heme destruction, and iron, biliverdine, and carbon monoxide result as end-products [4]. Biliverdine is converted into bilirubin by being reduced in the lungs. In recent years, it has been considered that bilirubin has constructive effects in preventing oxidative alterations in many diseases, such as atherosclerosis, cancer, inflammatory, autoimmune, and degenerative diseases [5]. On the other hand, increased bilirubin levels also reflect the impact of HO, which is produced under oxidative stress conditions. In other words, in oxidative stress, blood bilirubin levels increase in correlation with the intensity of ischaemia [6].

The Crohn's Disease Activity Index (CDAI) is still the most common method for evaluating CD inflammatory activity [7]. In this standard examination, the clinical symptoms of the patient are the primary factors while the physical examination and laboratory findings are less considered. Disease activation intensity is determined based upon the figures calculated from the criteria. The result from this method may not give a solid assessment of the disease situation since the course and symptoms of CD may vary from patient to patient. In a recent study it was determined that the CDAI is not sufficient to distinguish the symptoms of irritable bowel syndrome from active Crohn's disease [8].

Considering that inflammation plays a crucial role in the mechanism of CD, the aim of our study was to evaluate the potential of bilirubin as a serum factor to be a marker of disease activity of CD.

Material and Method

Patients

This study was a retrospective and concentric study. Thirty patients diagnosed with active CD (14 female and 16 male, average age: 47.73±14.95) and 66 healthy control subjects (30 female and 36 male, average age: 48.42±15.08) were involved in the study from the Gastroenterology unit. Each participant signed an informed consent form in accordance with the requirements of the Declaration of Helsinki. The study was approved by the local ethics committee of Canakkale Onsekiz Mart University.

CD diagnosis was made based on endoscopic and histopathologic criteria. Clinical activity was determined using the Crohn's Disease Activity Index (CDAI). It was defined as the active phase of the disease if the CDAI was ≥ 150 and as remission if the CDAI was < 150 [7]. Subjects with elevations in any of the liver function tests (defined as alanine aminotransferase 40 U/L, aspartate aminotransferase 30 U/L, gamma glutamyl transferase 70 U/L, and alkaline phosphatase 120 U/L) were excluded from the study.

Healthy control subjects were recruited from among patients with GOR and were matched to the patients by age and sex. Patients with CD were excluded from the study when there was any documentation of abdominal abscess, bowel obstruction, active gastrointestinal bleeding, evidence of liver disease, those who had pitches on their liver function tests, or pregnancy. Control subjects were excluded from the study if there was any evidence of an acute viral or bacterial infection, presence of inflammatory disorder, or use of anti-inflammatory medications (e.g. oral corticosteroids, aminosalicylic acid, or non-steroidal anti-inflammatory agents).

Laboratory

Laboratory evaluations included routine liver biochemistry (alanine aminotransferase [ALT] and aspartate aminotransferase [AST] levels, total bilirubin, albumin, alkaline phosphatase, and gamma glutamyl transpeptidase [GGT]).

Venous blood samples of the participants were collected from the antecubital vein while patients rested in a supine position after an overnight fast. Serum samples were stored at 80°C and thawed immediately before analysis. Serum ALT, AST, GGT, ALP, albumin, and bilirubin levels in fasting subjects were analyzed using the ROCHE module Cobas 6000 (C501) and kits were procured from ROCHE diagnostics.

Statistics

SPSS software (Version 19.0; IBM, Chicago, IL, USA) was used for the statistical analysis and $P<0.05$ was considered statistically significant. Adjustment to normal distribution was evaluated by the Kolmogorov–Smirnov test, and all numerical data were expressed as a mean, SD, or median (interquartile range). Differences between groups were evaluated using the Mann–Whitney U test for nonparametric data, Student's t test for parametric data and chi square test at the initial stage. Correlations between parameters were analyzed using the Pearson (for normally distributed parameters) and Spearman (for parameters without normal distribution) correlation coefficients.

Results

96 subjects in total, comprising 30 Crohn's disease patients and 66 healthy controls, were involved in the study. Age and gender distribution were not significantly different between subjects with and without CD (Table 1).

Table 1. Basic characterics of patients and controls

	Controls	Chron´s disease
n	66	30
Age, years (Mean)	49,60±13,82	48.42±15.08
Sex	36 male, 30 female	16 male, 14 female

Liver function tests were assessed within the group both in active and in remission periods, and then were compared with the control group. Albumin levels were quite low in the active period ($p<0,05$). No considerable change was observed in other liver function tests (Table 2).

When total bilirubin values were examined, the bilirubin level among Crohn's disease patients was significantly increased compared to the control group ($p<0,05$). The albumin level was increased in liver functions tests during the remission period,

Table 2. Liver fonctions tests in Crohn´s Disease (active and remission periods) and control group

	Active period	Remission period	Controls
AST (U/L)	20.30±5.86	19.91±7.35	18.38±5.31
ALT (U/L)	22.13±12.86	19.56±11.04	19.71±8.06
GGT (U/L)	22.79±10.80	27.41±18.99	17.55±6.87
ALP (U/L)	72.38±18.27	72.64±19.32	65.22±15.99
ALB (mg/dl)	4.40±0.39	4.56±0.39	4.73±0.39
T. Bilirubine (mg/dl)	0.55±0.22	0.39±0.14	0.44±0.18

while no change was observed in other function tests. However, the total bilirubin value exhibited significant alteration during the remission period.

Discussion

Our study showed that bilirubin increased as a result of chronic inflammation in Crohn's disease and that this increase was more obvious during the activation period. We determined that this increase in bilirubin level in the course of Crohn's disease, particularly during the activation period, was statistically significant and was not correlated with CDAI.

It is known that inflammation plays a critical role in CD pathogenesis [9]. During inflammation, activated neutrophils produce ROS and induce tissue damage.

The ROS attack double bonds within polyunsaturated fatty acids, are able to stimulate lipid peroxidation and as a result cause oxidative damage [10]. Increased ROS affects intracellular signals that regulate processes such as cell growth, differentiation and cell death, and increases oxidative stress [11,12]. In studies conducted in Crohn's disease patients it has been shown that oxidative stress is increased by ROS during the activation period [13,14]. In another study done by Maor et al., it was found that oxidative stress increases while the antioxidant capacity decreases during the activation period of Crohn's disease [13].

Bilirubin is a product of HEM destruction, which is catalyzed by the HO enzyme. There are two subtypes of HO enzyme identified in humans. HO-1 is activated by a very large number of factors, including oxidative stress, and is mostly expressed in tissues [4]. It is known that induction of HO-1 enzyme occurs under stress conditions such as ischaemia, hemorrhagic shock, heat shock, hypoxia, and ROS [15]. Bilirubin production increases as a result of increased activation of the HO enzyme. Our study has shown that there is a significant level of bilirubin in CD patients where inflammation is present compared to the healthy control group. In addition, we identified a statistically significant pitch when we compared bilirubin levels during the activation period with those during the remission period. These results show that bilirubin production is increased as a result of oxidative stress under conditions where inflammation is present.

CDAI is a standard evaluation method used for identifying activation of Crohn's disease. From studies conducted in recent years, it is known that its sensitivity decreases in the presence of irritable bowel syndrome. In recent years, different activation indicators that could be used alongside the CDAI have been studied. It is known that CRP and sedimentation rate, which are used as inflammation indicators, are not specific for CD and cannot be used as activation indicators [16]. Solem et al. observed that the CRP test had 54% sensitivity and 75% specificity for CD in 105 patients [17]. In the study conducted by Yan Lu et al., a decrease in the serum level of omentin-1, which has an adipokine anti-inflammatory role, was significant among Crohn's disease patients during the activation period. In addition, this was better correlated than serum CRP level [18]. In another study, it is stated that granulocyte macrophage colony-stimulating factor antibody, which suppresses the inflammation response, is a parameter that can be used for monitoring disease activation [19]. Our work has shown that serum bilirubin measurement in CD involving inflammation can be a marker that can be used to evaluate disease activity. In addition to this, the bilirubin measurement is more easily accessible and more cost effective compared to other parameters. This parameter can easily be put to use in daily practice.

Conclusion

In summary, our study showed that serum bilirubin was increased in active CD patients compared to controls. There was a correlation of serum bilirubin with disease activity in CD. Serum bilirubin is thus a biomarker for CD disease activity. These findings should be further validated in long-term prospective studies.

Competing interests

The authors declare that they have no competing interests.

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Ultrasonographic Evaluation of Femoral Cartilage Thickness in Patients with Rheumatoid Arthritis

Romatoid Artritli Hastalarda Femoral Kıkırdak Kalınlıklarının Ultrasonografik Değerlendirilmesi

Femoral Cartilage Thickness in Patients with Rheumatoid Arthritis

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Özet

Amaç: Bu çalışmanın amacı romatoid artritli (RA) hastalarda distal femoral kıkırdak kalınlıklarında oluşabilecek değişiklikleri ultrason ile değerlendirmektir. Gereç ve Yöntem: Çalışmaya 40 RA'lı hasta ile aynı yaş grubunda 40 sağlıklı kontrol alındı. Her iki grupta ultrason ile katılımcıların distal femoral kıkırdak kalınlıkları ölçüldü. Mobiliteyi değerlendirmek için katılımcılara sandalyede kalkma testi ve 10 metre yürüme testleri uygulandı. Sağlık Değerlendirme Anketi ile hastaların yaşam kaliteleri, DAS-28 skoru ile hastalık aktiviteleri değerlendirildi. Bulgular: Romatoid artritli hastalarda kontrol grubu ile karşılaştırıldığında medial femoral kondiler kıkırdakların bilateral ince olduğu saptandı (p<0.05). İnterkondiler alan ve lateral femoral kondiler kıkırdak kalınlıklarında ise gruplar arasında anlamlı fark saptanmadı. Sandalyede kalkma ve 10 metre yürüme testlerinde RA'lı hastaların belirgin şekilde düşük performans sergiledikleri görüldü (sırasıyla p=0.000, p=0,001). RA'lı hastaların fiziksel aktivite düzeyleri de kontrol grubuna göre düşük bulundu (p=0.002). Kıkırdak kalınlıkları ile hastaların karakteristik özellikleri ve laboratuar parametreleri arasında ilişki saptanmadı. Tartışma: Romatoid artrit medial femoral kondiler kıkırdaklarda dejenerasyon ve mobilite kayıbına neden olmaktadır. Bu hastalara erken dönemde eklem koruma tekniklerinin öğretilmesi alt ekstremite dizabilitesini azaltabilecektir.

Anahtar Kelimeler

Diz; Kıkırdak Kalınlığı; Romatoid Artrit; Ultrason

Abstract

Aim: The aim of the present study was to evaluate changes in distal femoral cartilage thickness in patients with rheumatoid arthritis (RA) using ultrasonography. Material and Method: The study enrolled 40 RA patients and 40 age-matched healthy controls. The distal femoral cartilage thickness of the participants was measured by means of ultrasonography. The chair stand test and 10-meter walk test were performed for all participants in order to assess mobility. The Health Assessment Questionnaire was used for evaluation of quality of life and DAS-28 scores for evaluation of the disease activity. Results: Compared to the control group, medial femoral condylar cartilage was thinner bilaterally in patients with rheumatoid arthritis (p<0.05). There was no significant difference between the groups in the cartilage thickness values obtained from the femoral intercondylar area and the lateral femoral condyle. RA patients had a significantly lower performance in the chair stand test and 10-meter walk test versus the control group (p=0.000 and p=0.001, respectively). Physical activity levels were also reduced in RA patients in comparison to the control group (p=0.002). Cartilage thickness measurements did not correlate with any patient characteristics or laboratory parameters. Discussion: Rheumatoid arthritis causes degeneration of medial femoral condylar cartilage and loss of mobility. Providing RA patients with education on joint protection techniques in an early stage would help reduce lower-extremity disability.

Keywords

Cartilage Thickness; Knee; Rheumatoid Arthritis; Ultrasonography

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Introduction

Rheumatoid arthritis (RA) is a progressive rheumatic disease that is characterized by chronic inflammation of synovial tissue in the diarthrodial joints [1]. This condition causes substantial cartilage degradation and joint deformities as a result of the formation of pannus tissue due to synovial inflammation [2]. Patients with rheumatoid arthritis are known to be affected by considerable involvement of the knee joint and resulting severe functional loss [3].

Cartilage loss related to RA is traditionally identified through demonstration of narrowing of the joint space by radiography. However, this method fails to adequately show early changes in the joint and also poses additional risks associated with exposure to radiation [4]. Being an inexpensive, non-invasive, safe, and easy to access method, ultrasound (US) has been increasingly used in recent years [5,6]. Ultrasonography was demonstrated to be a valid modality for evaluation of distal femoral cartilage thickness [4]. Ultrasonographic femoral cartilage examinations are known to have strong correlation with histological grading [7].

Distal femoral cartilage thickness was assessed in various conditions including certain rheumatic diseases: ankylosing spondylitis [8], systemic sclerosis [9], Behçet's disease [10], systemic lupus erythematosus (SLE) [11], and knee osteoarthritis [6].

Our literature search showed that changes in femoral cartilage thickness were not adequately examined in RA patients. There is only one study in the literature that compares femoral cartilage thickness in RA patients versus healthy controls, and no study is available on factors associated with cartilage thickness in these patients [12]. In the current study, we aimed to evaluate changes in distal femoral cartilage thickness by means of ultrasound and to investigate factors associated with cartilage thickness in RA patients.

Material and Method

Forty patients with RA who were being followed and treated at our Physical Therapy and Rehabilitation outpatient clinics were enrolled in the study. RA was diagnosed according to the 2010 ACR/EULAR diagnostic criteria [13]. Patients with previous joint or soft tissue surgery, prior treatment with corticosteroid injections to the knee joint, congenital or traumatic knee problems, or a severe neurological, cardiac, pulmonary, or malignant disease were excluded. Forty healthy subjects matched for age and body mass index (BMI) were enrolled as the control group. Approval for the conduct of the study was obtained from the local ethics committee of our hospital. All patients and control subjects gave informed consent prior to initiation of the study.

Demographic and clinical characteristics including age, height, body weight, disease duration, history of knee pain, and use of medications were recorded for all patients. Range of motion of both knees was measured using a goniometer. Physical examinations were performed to determine the presence of swelling and warmth in the knees. DAS-28 scores were calculated to assess disease activity in the group of RA patients. Serum C-reactive protein (CRP) and erythrocyte sedimentation rate (ESR) in 1 hour were obtained for all patients. Quality of life of patients was evaluated using the Health Assessment Questionnaire (HAQ) [14].

The chair stand test (CST) was performed to assess functional mobility in the patient and control groups. For the test, the subject was asked to sit in an upright position at the center of a chair with a seat height of 43 cm with hands placed on the contralateral shoulders. The subject was instructed to sit down on and stand up from the chair for 30 seconds following the "Start" command. The test score was determined based on the number of chair stands during 30 seconds. The ten meter walk test was conducted to evaluate the walking performance of the participants over a short distance. For this purpose, the time required to briskly walk a 10-m distance was recorded. For each subject, the average of three measurements was used in the analysis.

The International Physical Activity Questionnaire-Short Form (IPAQ) was administered to all participants in order to determine their physical activity levels. This questionnaire addresses the time spent in vigorous and moderate activities and walking in the previous 7 days. To obtain activity scores reflected by MET (Metabolic Equivalent of Task), the time (in minutes) spent for a specific activity was multiplied by 8 for vigorous physical activities, by 4 for moderate physical activities, and by 3.3 for walking. Scores for vigorous, moderate, and mild activities were summed to obtain the total physical activity score in METs [15].

Distal femoral cartilage thickness was measured using a Mindray DC-T6 (China) ultrasound device and a 5-10 MHz linear probe. Since femoral cartilage thickness shows a diurnal variation, cartilage thickness measurements were conducted in the morning between 8 and 9 AM for all participants [16]. Measurements were obtained in the supine position with the knee in maximal flexion by placing the probe on the suprapatellar region in the axial position. The thicknesses of the medial femoral condylar (MFC), intercondylar area (ICA), and lateral femoral condylar (LFC) cartilage were measured in both knees (Figure 1). Video images of the cartilage thickness were recorded by

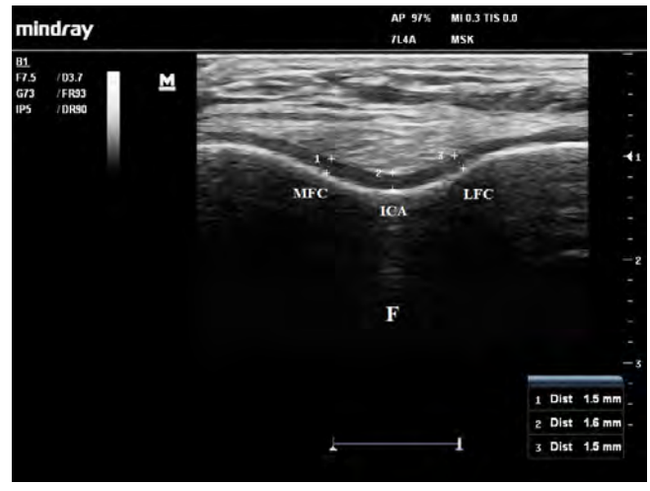

Figure 1. Ultrasonographic image demonstrating the sites of femoral cartilage thickness measurements (F: Femur, ICA: Intercondylar area, LFC: Lateral femoral condyle, MFC: Medial femoral condyle)

the US device. Subsequently, recorded video images of all patients were interpreted by a physiatrist experienced in musculoskeletal ultrasound in order to standardize cartilage thickness measurements; cartilage thickness values were also obtained. Measurements were repeated three times for both knees and

the averaged cartilage thickness values (in millimeters) were used in the analysis.

Statistical analyses

Statistical analyses of the study findings were performed using SPSS (Statistical Package for the Social Sciences) for Windows version 19.0. For analysis of study data, descriptive statistical methods (mean, median, standard deviation, minimum-maximum) were used as well as Student-t test for between-group comparisons of normally distributed quantitative data and Mann-Whitney U test for between-group comparisons of non-normally distributed quantitative data. Results were interpreted at a 95% confidence interval with the significance level set at p<0.05.

Results

Characteristics of both groups are presented in Table 1. Mean age, gender distribution, and mean BMI values were not different between the groups. The disease duration ranged from 1 to 35 years in RA patients. Knee pain was present in 29 RA patients (72.5%). ESR, CRP, HAQ scores, and median DAS-28 values of the RA group are shown in Table 1. Thirty-three patients were receiving Disease-Modifying Anti-Rheumatic Drugs (DMARDs), 4 patients were on anti-tumor necrosis factor (TNF) treatment, and 3 were receiving combination therapy.

The mean chair stand test scores of RA patients were found to be lower than those in the control group, at a highly statistically significant level (p=0.000). The time to complete the 10-meter walk test was significantly longer in RA patients (p=0.001) (Figure 2). The RA group had significantly lower median IPAQ scores with a MET of 99 (min-max: 16.5-495) compared to the control group (median 396, min-max:20-1782) (p=0.002).

Femoral cartilage thickness measurements of a total of 160 knees (both right and left) were analyzed for the two groups. Relative to the control group, the RA group showed thinner MFC cartilage in both right and left knees. However, cartilage thickness measurements of ICA and LFC were not different between groups (Table 2).

Table 1. Characteristics of study groups

	RA (n=40)	Control (n=40)	P value
Age,mean±SD, years	53.9±9.6	51.1±8.8	0.278
Gender (female), n(%)	35 (87.5%)	34 (85%)	0,745
BMI, mean±SD, kg/m2	29.0±5.3	27.5±4.4	0.307
Disease duration, years	6 (1-35)[a]		
Knee pain, n(%)	29 (72.5%)		
ESR, mm/h	29.5 (5-59)[a]		
CRP, mg/L	0.35 (0.1-4.1)[a]		
DAS-28	2.92 (1.2-4.8)[a]		
HAQ	0.6 (0.1-1.75)[a]		
Treatment, n(%)			
DMARD	33 (82.5%)		
Anti-TNF	4 (10%)		
DMARD+Anti-TNF	3 (7.5%)		

[a] Median (minimum-maximum), BMI: body mass ındex, CRP: c-reactive protein, DAS-28: disease activity score-28, DMARD: disease-modifying anti-rheumatic drug, ESR: eritrosit sedimentation rate, HAQ: health assessment questionnaire, SD: standard deviation, TNF: tumor necrosis factor

Femoral cartilage thickness was not correlated with age, BMI, duration of disease, disease activity, HAQ scores, or laboratory tests among RA patients (p > 0.05).

Table 2. Comparisons of femoral cartilage thickness between study groups

	RA (n=40)	Control (n=40)	P value
MFCR, mm	1.7±0.25	1.9±0.24	0.015 *
ICAR, mm	1.9±0.29	2.0±0.20	0.518
LFCR, mm	1.9±0.24	2.0±0.19	0.416
MFCL, mm	1.7±0.24	1.9±0.19	0.015 *
ICAL, mm	1.9±0.28	2.0±0.17	0.426
LFCL, mm	1.9±0.25	2.0±0.18	0.415

p<0.05 * ,ICA: intercondylar area, L: left, LFC: lateral femoral condyle, MFC: medial femoral condyle, mm: millimeter, RA: rheumatoid arthritis, R: right

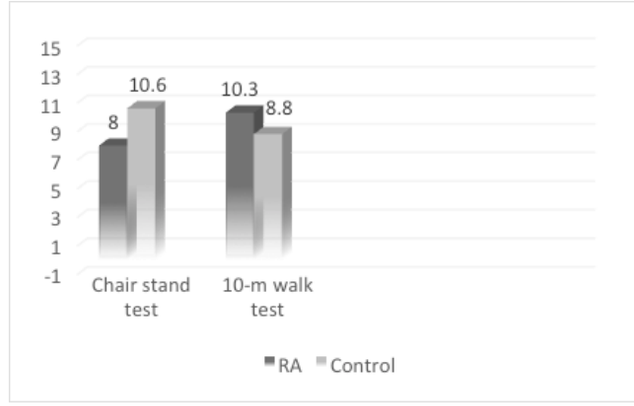

Figure 2. Comparisons of chair stand and 10-meter walk test scores between study groups

Discussion

Our present study showed a reduction in the medial femoral cartilage thickness in RA patients. Compared to healthy individuals, distal femoral cartilage thickness was shown to be reduced in patients with Behçet's disease, which causes arthritis of the knee and wrist [10]. In that study, thinning of LFC and ICA was demonstrated only in the left knee but, similar to our study findings, MFC thickness was reduced in both knees. The thinning of cartilage among patients with Behçet's disease, particularly in the medial femoral cartilage, was considered to be associated with early degeneration of the knee joints and eventually with osteoarthritis [10].

Reduction of femoral cartilage thickness was also demonstrated in systemic sclerosis, another autoimmune inflammatory disease [9]. In that study, while bilateral ICA cartilage thickness measurements were similar to those of control subjects, thinning of the LFC cartilage was observed only in the left knee and thickness of the MFC cartilage was reduced in both knees; these results are consistent with our findings [9]. It is known that during mechanical loading, the load is transferred particularly through the medial femorotibial compartment at the knee joint because of the knee abduction moment [16]. Specifically, medial joint spaces are affected in patients with knee osteoarthritis. The reductions in MFC cartilage thickness observed in our RA patients seem to be associated with development of secondary osteoarthritis in these patients.

Kaya et al. [11] found that the femoral cartilage thickness was comparable between patients with SLE and healthy subjects.

However, they reported that cartilage thickness was increased in the SLE group when only the patients receiving corticosteroids were taken into account. The authors concluded that this might be attributed to an increase in chondrogenesis induced by steroid use. Among patients with ankylosing spondylitis, femoral cartilage was shown to be protected in those patients receiving anti-TNF therapy due to suppression of inflammation; these patients had thicker femoral condylar cartilage in comparison to patients not using anti-TNF agents [8].

Our study is the first to report the association of femoral cartilage thickness with clinical and laboratory parameters in RA patients. Batmaz et al. [8] did not find any correlations between clinical and laboratory parameters and femoral cartilage thickness in AS patients. In a separate study, similar findings were reported for patients with Behçet's disease [10]. Our findings from RA patients also showed the absence of correlations between femoral cartilage thickness and age, disease duration, DAS-28, HAQ scores, ESR, and CRP levels. According to Malas et al. [18], among patients with knee osteoarthritis, those with severe clinical manifestations were not different from those with a mild clinical course with respect to the cartilage thickness. On the other hand, femoral cartilage thickness was shown to be negatively correlated with age in healthy individuals [17].

The synovium is one of the major target sites of inflammation in RA and similar rheumatic disorders. Cytokines such as interluekin-1 (IL-1) and TNF-α which are increased in the serum and synovial fluid in the course of RA have also been reported to induce the catabolism of chondrocytes in patients with osteoarthritis [19]. Marked increases in the molecules implicated in structural cartilage damage, such as matrix metalloproteinases, are known to be increased in RA patients [20]. Infiltration of inflammatory cells, primarily cytokines, into the synovial tissue and release of lytic enzymes into the environment through the actions of inflammatory mediators result in progressive cartilage destruction [1]. There is evidence that TNF-α and IL-1 are also involved in the pathogenesis of osteoarthritis as a result of similar actions [21]. Severe knee joint degenerations and increased prevalence of total knee arthroplasty have been shown in RA patients, especially in the presence of greater disease activity. Patients on long-term treatment with steroids alone without concomitant methotrexate were reported to have a higher risk for total knee arthroplasty [3]. It was reported that involvement of a large joint and particularly the knee joint could be the initial predictor of a severe disease course associated with subsequent significant destruction in smaller joints in RA patients [22].

Limitations of our study include the cross-sectional design and small sample size. Further studies are needed to evaluate the impact of different therapies on femoral cartilage thickness in larger patient groups with RA.

Based on reductions in the distal femoral cartilage thickness observed in patients with rheumatoid arthritis and on literature data on other inflammatory rheumatic diseases, it seems that early cartilage degeneration occurs in the course of these diseases, mainly affecting the medial joint cartilage. Inclusion of joint protection techniques including weight control and management of the activities of daily living as part of the treatment regimen would help decrease lower-extremity disability in these patients who experience significant functional loss due to joint deformities.

Competing interests

The authors declare that they have no competing interests.

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Evaluation of Lumbosacral Angle (LSA) and its Impact on Patients with Lumbar Disc Herniation

Lumbosakral Açının Lomber Disk Hernili Hastalardaki Etkisinin Değerlendirilmesi

Evaluation of Lumbosacral Angle

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Özet

Amaç: Bel ağrısının en sık sebeplerinden biri lomber disk hernisidir (LDH). LDH'nin tedavi yöntemlerinden biri cerrahi operasyondur. LDH'de, lomber lordoz açısında meydana gelen değişiklikler hastanın klinik durumunda olumsuz etkilere yol açmaktadır. LDH cerrahisi sonrasında ve kas spazmlarına bağlı olarak lordoz-sakral eğim açısında önemli değişikliklerin meydana geldiği bilinmektedir. Bu çalışmada, LDH'li hastalarda cerrahi operasyon öncesi ve sonrasında ölçülen lumbosakral açı değişikliklerinin hastaların klinik durumu üzerindeki etkisini araştırmayı amaçladık. Gereç ve Yöntem: Çalışmada, 2005-2007 yılları arasında lomber disk hernisi tanısıyla ameliyat edilen 139 hastanın operasyon öncesi ve sonrası lumbosakral açıları ölçüldü. Hastalar, Oswestry Skalası, Görsel Analog Skala, Narkotik Skor ve Hasta Memnuniyeti Değerlendirme Skalası kullanılarak değerlendirildi. Lomber lordoz açısı, sakral eğim açısı ve disk yüksekliği direkt radyografi kullanılarak hesaplandı. İstatistiksel analiz GraphPad Prisma V.3 yazılımı kullanılarak gerçekleştirildi. Bulgular: Lordoz açısı ve sakral eğim açısının postoperatif dönemde arttığı tespit edilmiştir. Bu artışın hastanın klinik durumu üzerinde olumlu bir etki sağladığı saptanmıştır. Tartışma: LDH'li hastalardaki biyomekanik açının klinik etkilere sahip olduğu bilinmektedir. Biyomekanik parametreler cerrahi öncesi ve sonrasında ve postoperatif kontrollerde akılda tutulmalıdır. Ameliyat kararı verilmeden önce hastaların lordoz açısı, komşu disk yapıları ve sakrum ile olan ilişki mutlaka değerlendirilmelidir.

Anahtar Kelimeler

Lomber Disk Hernisi; Lomber Lordoz Açısı; Sakral Eğim Açısı

Abstract

Aim: One of the most common causes of low back pain is lumbar disc herniation (LDH). One of the treatments for patients with LDH is a surgical operation. Changes in the lumbar lordosis angle have a negative impact on patients, clinically. The significance of changes in the lordosis-sacral inclination angle that are associated with muscle spasms and are seen after LDH surgery is known. In this study, we would like to examine the clinical impact on patients due to changes in the lumbosacral angle measured before and after surgical operations in patients with LDH. Material and Method: Between 2005–2007, preoperative and postoperative lumbosacral angles of 139 patients operated on for a diagnosis of lumbar disc herniation were measured. Patients were evaluated with the Oswestry Scale, Visual Analogue Scale, Narcotic Score, and Patient Satisfaction Evaluation. Lumbar lordosis angle, sacral inclination angle, and disc height were calculated by direct radiography. Statistical analysis was performed with GraphPad Prisma V.3 software package. Results: In this study, increases of lordosis angles and sacral inclination angles have been observed, postoperatively. It has been shown that these have a positive impact on the clinical course. Discussion: The clinical effects of the biomechanics of angles of patients with LDH are clear. Biomechanical parameters should be considered at preoperative treatment, postoperative treatment, and postoperative controls. The patient's lordosis angle, neighboring disc structure, and relationship with the sacrum must be carefully evaluated for surgical decision.

Keywords

Lumbar Disc Herniation; Lumbar Lordosis Angle; Sacral Inclination Angle

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Introduction

Back pain is one of the common reasons for absence from work and social activity [1,2,3]. Approximately 80% of the entire world population have complained of low back pain at least once in their lives [4]. Typically, younger individuals (40 to 50 year olds) are more likely to experience back pain; it is significantly more common among adults working in factories and the service industry [5,6,7]. 2-3% of all back pain syndromes are associated with lumbar disc herniation [8]. Recent developments in the field of radiology have increased the reliability of the diagnosis of disc herniation; simultaneously, new medical and surgical treatments have been widely applied [9].

The postural and angle changes of the spine in frontal, transverse, and sagittal planes were thought to be the cause of back pain and disc degeneration. However, the effect of lumbar lordosis reduction or increase is still unclear. There are negative effects of lumbar lordosis loss; the importance of the preservation of physiological stance is emphasized [10]. In recent years, high rates of lumbar disc hernia surgery and the widespread use of spinal instrumentation and increased fusion operations have provided for more-detailed investigation of the spinal cord contour [11, 12, 13]. The effect of increased or decreased lordosis is not fully shown but many researchers have reported negative effects of iatrogenic loss of lordosis after spinal surgery and have emphasized the importance of ensuring physiological lordosis [14, 15].

In this study, changes in the lumbosacral biomechanical angle parameters were investigated in the surgical treatment of patients diagnosed with lumbar disc herniation (LDH). Relations between pre-intervention angles, post-intervention pain, pain scores, and levels of patient satisfaction were examined.

In addition, sacral inclination angle differences according to gender and age, both before and after treatment, were investigated. Before and after treatment disc space height was evaluated according to age. In this study, we aimed to evaluate patients with lumbar disc herniation surgery, measure biomechanical angles preoperatively and postoperatively during specific periods, investigate the effects of these angles on each other, and follow up clinically.

Biomechanics of the Spine

The disc is a viscoelastic and anisotropic structure. When testing biomechanical and elastic properties of the disc, low-speed loading conditions are applied. On a compression test, the disc has low flexibility but it seems to behave solid form in order to increase stability in the large load value. Therefore the nucleus that maintains normal elastic properties under compressive loads during daily activity tends to herniate less [16].

In the static compressive strength test load performed on functional spinal unit (FSU), spinal end-plate damage before disc tissue was seen to occur [17]. Therefore, depending on the location of the nucleus of the vertebral body end-plate fracture, Schmorl nodes may occur.

In the first in vivo experiments to determine the amount of pressure inside a disc, a pressure transducer was placed inside. L3-L4 disc pressure 300% higher than normal was found at the sitting position, forward at 20 degrees flexion, or with 20 kg load [18].

Intradiscal pressure is different in different body positions: At lying it is 154 kPa (kilo Pascals), at standing 550 kPa, and at sitting 700 kPa. Moreover, disc pressure is known to increase with intradiscal degeneration [19].

Material and Method

This study was carried out between December 2005 and January 2007 in Neurosurgery Clinic, Vakıf Gureba Training and Research Hospital. The records of 139 surgical patients hospitalized with the diagnosis of lumbar disc herniation were studied retrospectively. Oswestry Scale, Visual Analogue Scale, Narcotic Score, Pain Score, Patient Satisfaction Evaluation, the measurement of lumbar biomechanical angles, age, gender, occupation, position of herniation, and disk type parameters in lumbar MRI were used to evaluate the patients. Relevant forms are shown below.

Patients were excluded from the study if they had a history of: surgery with a diagnosis of lumbar disc herniation; spinal surgery due to infections, inflammation, neoplasia, or fractures; instability problems such as spondylolisthesis, spondylolysis; recurrent disc herniation; and pregnancy. There was no age limit for patients in the study.

Parameters for follow up

1. Pain Assessment

-Visual Analogue Scale (VAS)

- Pain Score
- Narcotic Score

2. Measurement of functional impairment

Modified Oswestry Disability form was used for the measurement of functional disability. This scale, described by Fairbanks and then modified by Hudson-Cook, is recommended as a sensitive scale in the measurement of functional disability in patients with low back pain because of its validity and reproducibility.

L1-S1 Lumbar Lordosis Angle (LLA) (Picture 1), L1-L5 Lumbar Lordosis Angle (LLA) (Picture 2), within Lumbar Disc Herniation (LDH) Lordosis Angle (Picture 3), Lordosis Angle in Lumbar Disc Herniation (LDH) (Picture 4), Sacral Inclination Angle (SIA) (Picture 5), height of the disc at the disc herniation (Picture 6), height below the disc at the disc herniation (Picture 7), and height above the disc at the disc herniation (Picture 8) were measured in the lumbosacral lateral radiographs at preoperative, postoperative after 1 month, and postoperative after 6 months. On these x-rays, a total of 2085 angles and 1251 disc spaces of 139 patients were measured.

All of these parameters values were compared before treatment and after treatment. The relationship of postoperative pain and preoperative angle was evaluated, as was the relationship between percentage change of angles and percentage change of pain scores.

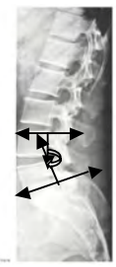
Statistical Evaluation

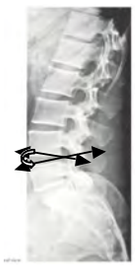
In this study, statistical analysis was performed with the GraphPad Prisma V.3 software package. Comparisons between groups were performed with Kruskal-Wallis test, subgroup comparisons with Dunn's multiple comparison test, group comparisons before and after treatment with Wilcoxon test, and the relationships between variables determined with Pearson's correlation

test. Also, we used descriptive statistical methods of evaluating the data (mean, standard deviation). Results are significant at $p < 0.05$ levels.

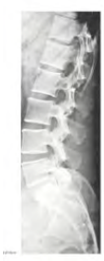

Picture 1


Picture 2


Picture 3


Picture 4


Picture 5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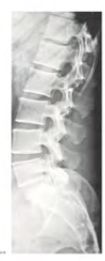

Picture 7

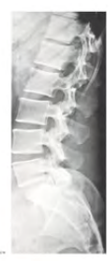
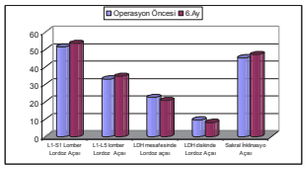
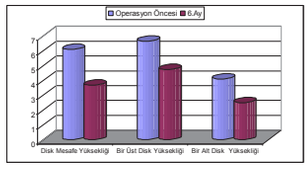

Picture 8

Table 1. Age distribution of patients

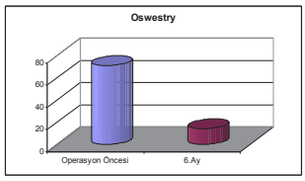
Total number (139)	Minimum	Maximum	Average	Standard Deviation
Age	23	84	45.68	10.38



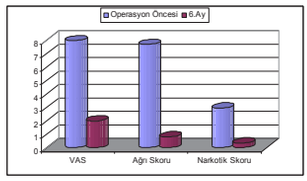
Graphic 2.a



Graphic 2.b



Graphic 2.c



Graphic 2.d

Discussion and Conclusions

Back pain is a very widespread public health problem, affecting three-quarters of the world's population at some period of their life. 75-85% of adults have experienced back pain during some period and 80% have faced recurrent episodes [20]. The fact that back pain is continuous and recurrent increases its public health cost. In some studies, a decrease of waist, back, and abdominal muscle strength and durability in chronic back pain patients has been shown to be a weakness that is a predisposing factor for back pain [21]. The majority of our patients were either housewives or workers employed in the textile factory; their physically demanding work is one of the main factors leading to chronic back pain.

In a study made by Mulholand and Sengupta, degenerative process, rather than abnormal movement patterns of abnormal load, can cause low back pain in some patients. Osteoarthritic disc joints may be the source of pain [22].

Lumbar disc herniation is one of the major causes of low back pain. The pathogenesis of disc degeneration remains unclear. Together, the effect of heavy physical work, heavy lifting, standing in the same position, and vibration creates a vicious cycle. Besides these environmental factors, some internal factors such as the mechanical properties of the patient's spine, biochemical characteristics of the intervertebral disc, and characteristics of the vessels supplying the discs are known to play a role in the development of degeneration. For example, smoking can disrupt blood supply to the disc and has been identified as an important factor in disc degeneration. Smoking causes progressive degeneration of the disc, hyalinization of the nucleus pulposus and necrosis [23]. The genetic structure that determines disc biochemistry is partially inherited [24].

Lotz and Ulrich studied experimental models of disc degeneration. As a result, they are convinced that the three factors related to the occurrence of discogenic pain are disc innervation, inflammation, and hypermobility [25].

The pathology of the spine can lead to the development of non-physiological movement or can restrict the range of movement. In individuals, these processes manifest in many ways, from pain caused by movement to neurological deficits. The purpose of spinal surgery is to make these pathological processes physiological as much as possible. The number of patients who receive spinal surgery is increasing every day. The aim of surgical treatment is to bring the contour of the spine in the frontal, sagittal, and transverse planes to as normal a position as possible. Spinal surgery makes energy absorption with cervical lordosis, thoracic kyphosis, and lumbar lordosis more effective and increases spinal muscular efficiency. In addition, this structural curvature contributes to erect posture in the patients [26,27].

The angle and posture changes of the spine in the frontal, sagittal, and transverse planes were thought to be the cause of low back pain and disc degeneration. The effect of lumbar lordosis reduction or increase is still unclear. The negative effects of the loss of lumbar lordosis and the importance of protecting the physiological position are emphasized [10].

In recent years, high rates in lumbar disc hernia surgery and the widespread use of spinal instrumentation and increased fusion operations have enabled more-detailed investigation of the spinal cord contour [11, 12, 13]. The effect of increased or decreased lordosis is not fully shown, but many researchers have reported negative effects of iatrogenic loss of lordosis after spinal surgery and emphasized the importance of ensuring physiological lordosis [14, 15].

Knowing that the limits of normal sagittal contour of the spine fulfill many functions in a healthy person is important. The spine supports the head and body with physiological contour and provides adequate and painless movement. Natural development of the sagittal contour of the spine is not fully understood. Lumbar lordosis, whether it has developed primarily or developed secondarily with thoracic kyphosis, continues to be a topic of discussion [26].

There are studies suggesting that reduction of lumbar lordosis is associated with low back pain [10,11,14,15,28]. In neurosur-

gery clinical practice, the lumbar lordosis of most low back pain patients is evaluated. However, the problem lies in associating the evaluations with subjective assessments such as decreased or increased lordosis.

Although it has recently become more routine, lumbar lordosis measurement technique hasn't yet become fully standardized [15]. In this study, we have calculated the segmental lordosis angles with total lumbar lordosis.

In this study, we have measured lumbar lordosis angle of the spine with different parameters before surgery for lumbar disc herniation. We evaluated the complaints of patients with a variety of scales. When we compare with the scale measure again in the postoperative period, existing preoperative pain due to flattening of lordosis is decreased in parallel with the increase in the angle of lordosis after surgery. There is also increase in patient satisfaction. We proved statistically that the increase in the sacral inclination is positive for patients.

In our study, the sacral inclination angle increased in parallel with the lumbar lordosis angle. The sacrum assumed a more inclined position. Also in parallel with changes in the lumbar lordosis angle, we see changes in the same direction in the sacral inclination angle. In a study made by Okcu et al., they have shown that the reduction in sacral inclination angle is associated with the reduction of lumbar lordosis and the movement of the sacrum into a more upright position. This is an indication that lumbar lordosis and sacral inclination balance each other.

Reduction of the lumbar lordosis angle is undesirable, because it adversely affects the biomechanical forces of the spine in the postoperative period and it may increase the mobility of the neighboring upper disc. This may accelerate the degenerative process and in the later stages may result in the emergence of adjacent segment disease. These results are based on follow up at 1 month and 6 months. It should be kept in mind that there may be a different result in long-term follow up.

İn the early preoperative and postoperative periods, flattening lordosis is a factor responsible for the patient's complaints (radiculopathy, neurological claudication, etc.). Because nerve regeneration cannot occur and deformed muscle structure cannot improve in the time frame of the early postoperative period, physiological lordosis cannot quickly be restored. Thus, the patient's complaints in this regard will continue during the early postoperative period. Based on the muscle mass after surgery and the duration of nerve regeneration, an increase of lordosis can be expected after 6 months, where it has been shown that the patient may come to the lowest level of postoperative complaints within an average 1-year period. Indeed, in our study, 1 month after intervention the change of lordosis angle was not statistically significant; however, lordosis angles did significantly increase at postoperative 6 months (hence the decrease of flattening lordosis). In addition, our study shows a positive impact on patients' clinical situation with respect to increase of biomechanical angles. Patients' complaints would be expected to decrease in this time frame.

When patient satisfaction and pain scores are compared with the patient's preoperative angles, there is a significantly positive correlation between a higher disc space height and patient satisfaction. If the preoperative disc space height is much higher, the patient satisfaction rate is much higher postoperatively. This helps to eliminate adjacent segment disease, secondary to the collapse of the evacuated disc space, due to the growing burden of foraminal narrowing and symptoms that develop due to the collapse of the upper disk.

The effects of biomechanical angles on patients' clinical experience with lumbar disc herniation are clear. Thus, biomechanical parameters must be considered during preoperative treatment, postoperative treatment, and follow-ups. For surgical decisions, the patient's lordosis angles, disc height, level of degeneration of the disc, the disc structure on neighbor distance, and the relationship of the disc with the sacrum must be carefully evaluated.

Competing interests

The authors declare that they have no competing interests.

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Low Primary Cesarean Delivery Rates of a Secondary Health Center in a Seven Year-Period

2. Basamak Bir Hastanenin 7 Yıllık Dönemde Düşük Primer Sezaryen Doğum Oranları

Low Rates of Primary Cesarean Delivery

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Özet

Amaç: 2. basamak bir hastanenin primer sezaryen seksiyo (SS) oranlarının ve endikasyonlarının sunulması amaçlanmıştır. Gereç ve Yöntem: Bu retrospektif çalışmada Mart 2009-Aralık 2015 tarihleri arasında 2. basamak bir hastanenede gerçekleşen doğumlar incelenmiştir. Toplam doğum sayısı, primer ve tekrarlayan SS sayısı, SS endikasyonları ve komplikasyonları değerlendirilmiştir. Bulgular: 7 yılllık çalışma süresi boyunca 6535 doğum gerçekleşmiştir. Hastaların ortalama yaşı 26.7 ± 6.0 (yaş aralığı: 15-47 yaş) olarak saptanmıştır. Tüm doğumların %20,5'i SS ile gerçekleşmiştir. Sezaryen seksiyoların %27,8'i primer, %72,2'si tekrarlayan seksiyodur. Çalışma dönemine ait ortalama primer ve tekrarlayan SS oranı sırasıyla %5,7 ve %14,8 olarak hesaplanmıştır. 2009 yılında %8,8 olan primer SS oranı 2015 yılında %4,3'e düşmüştür. En sık primer SS endikasyonları sırasıyla malprezentasyon (%33,9), fetal distres (%23,3) ve başarısız doğum indüksiyonu (%14,8) olarak saptanmıştır. SS yapılan hiçbir hastada bağırsak yaralanması saptanmamıştır. Tekrarlayan SS grubunda bir hastada mesane hasarı saptanmış ve başarıyla onarılmıştır. Tartışma: Çalışmamızda saptanan primer SS oranları oldukça düşüktür. Bu düşük oranlar hastaların vajinal doğum konusunda bilgilendirilmeleri ve cesaretlendirilmeleri, anne isteğine bağlı SS yapılmaması, term gebeliklerde amniyotik membran sıyırma işleminin yapılması gibi faktörlere bağlanabilir.

Anahtar Kelimeler

Sezaryen Seksiyo; Primer Sezaryen Seksiyo Oranı; Sezaryen Seksiyo Endikasyonları

Abstract

Aim: To present the indications and primary caesarean section (CS) rates of a secondary level hospital. Material and Method: This is a retrospective review of the births recorded at a secondary health center between March 2009 and December 2015. The number of patients with primary CS and repeat CS, total number of births, caesarean indications, and complications were assessed. Results: A total of 6535 live births were recorded during a seven-year-long study period. The mean age of the patients was determined as 26.7 ± 6.0 years (range of age: 15-47 years). Delivery by CS was performed in 20.5% of the total births. Of the caesarean births, 27.8% were primary CS and 72.2% were repeat CS. The mean primary and repeat CS rates during the study period were calculated as 5.7% and 14.8% respectively. The primary CS rate was 8.8% in 2009 and this number decreased to 4.3% in 2015. The most frequently encountered primary CS indications were malpresentation (33.9%) followed by fetal distress (23.3%) and failure of labour induction (14.8%) respectively. No intestinal injury was determined in any patient who underwent caesarean delivery. In the repeat CS group, only one patient had a bladder injury that was successfully repaired. Discussion: The rates of primary caesarean section determined in this study are very low. These low rates can be attributed to several factors such as informing and encouraging patients about vaginal birth, avoiding CS on maternal request, and applying amniotic membrane stripping at term pregnancies.

Keywords

Caesarean Section; Rate Of Primary Caesarean Section; Caesarean Section Indications

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Introduction

Although there are differences between countries in the rates of births by caesarean section (CS), an increase has been observed worldwide in these rates [1]. However, as there is increased maternal morbidity and mortality in CS compared to vaginal delivery, CS indications should be restricted to cases where there would be a definite benefit to both mother and fetus [2, 3]. It is also known that multiple CS has been associated with an increase in maternal morbidity and mortality [4, 5]. The rates of CS have been reported as approximately 30% in the USA, 17%-52% in European countries, and, according to 2014 data of the Turkish Ministry of Health, 51.1% in Turkey [1, 4]. The ideal rate of CS is a debatable issue. The 2006 NIH report stated that the ideal rate of caesarean section should not be restricted to numbers, but should be a rate whereby maximal results are obtained for the health of the mother and infant [6]. In a report on caesarean births published by the Turkish Association of Gynaecology and Obstetrics in 2013, it was reported that the rate of 15% CS, as defined by the WHO in 1985, had not been realised and the priority was to reduce CS rates to 35% [7]. In a retrospective study by Kupari et al. [8] examining full-term pregnancies, it was shown that the increase in CS had not improved short-term neonatal outcomes. However, there are views advocating that when attempting to reduce CS rates to below 10%-15%, there could be a reduction in neonatal well-being [9].

Although vaginal birth following CS is recommended for suitable cases, it has been reported that following a CS, 90% of subsequent births are also CS [10]. Therefore, with the increasing rates of primary CS, it is necessary to encourage vaginal delivery after a caesarean birth to be able to reduce CS rates.

The aim of this study was to present the number of births, the rates of primary and repeat caesarean deliveries, the indications, and complications at a secondary level hospital.

Material and Method

This study was conducted at Pazarcık State Hospital, which is a secondary level hospital. Approval for the study was granted by the Local Ethics Committee.

The records were examined of births at Pazarcik State Hospital between March 2009 and December 2015. The age of the patient, type of birth, primary caesarean section indications, and complications associated with CS were recorded. All of the reviewed deliveries by CS were performed by two surgeons (A.O., S.O.) using the Joel-Cohen technique.

The hospital where the study was conducted is a secondary level hospital serving a population of approximately 100,000. Almost all of the females in this population presented at the hospital for antenatal monitoring. On first presentation or at later appointments, patients could be transferred to a tertiary hospital if necessary.

Indications for transfer included monoamniotic monochorionic twin pregnancy, triplets, or higher multiple pregnancy, PPROM, severe pre-eclampsia, diabetic patients for whom glucose regulation could not be applied, total placenta previa cases, suspected cases of placenta accreta, those with severe oligohydramnios/polyhydramnios before 37 weeks, and those with major medical disorders. Patients with a Bishop score <6 at 41 weeks or later were also transferred. For those with a Bishop score >6, delivery was induced with 12 hours of oxytocin. If labour did not start after 2 applications of 12-hour induction, CS was performed.

The pregnant patients were informed about normal vaginal delivery and caesarean delivery during routine monitoring examinations. Patients with a history of CS underwent elective CS in the 39th week. Primary CS was not applied on maternal request only.

The pregnant patients were called for antenatal monitoring at monthly intervals up to the 32nd week, at 2-week intervals up to the 36th week and weekly thereafter. From the 38th week onwards, patients planning a vaginal birth gave informed consent for amniotic membrane stripping to be applied.

Collected data were analyzed by Statistical Package for the Social Sciences version 18.0 (SPSS IBM Inc., Armonk, NY, USA). Continuous variables were expressed as mean ± standard deviation (range: minimum-maximum) whereas categorical variables were denoted as numbers or percentages where appropriate.

Results

A total of 6535 live births were recorded between March 2009 and December 2015. The mean
age of the patients was 26.7±6.0 years (range: 15-47 years).
Table 1 summarizes the birth related statistics within the study period. Delivery by CS was
performed in 20.5% of the total births. Of the caesarean births, 27.8% were primary CS and
72.2% were repeat CS. The primary CS rate was 8.8% in 2009 and this number decreased to
4.3% in 2015. The mean rate of repeat CS was 14.8% within a seven-year-long study period.

The indications for primary CS are shown in Table 2. The most frequently encountered
indications were malpresentation (33.9%) followed by fetal distress (23.3%) and failure of
labour induction (14.8%) respectively.

Table 3 demonstrates the complications occurring in women who delivered by CS. No intestinal injury was determined in any CS patient. In the repeat CS goup, bladder damage was determined in 1 patient and at 14 days following primary repair, the bladder was catheterised. No further problems were reported by the patient.

Discussion

Caesarean section is the most frequently performed surgery in the USA [4]. The CS rates in Turkey are extremely high. According to data of Turkish Ministry of Health the rate of CS in Turkey was 48.0% in 2012, 50.4% in 2013, and 51.1% in 2013. In a 2013 report by the Turkish Association of Gynaecology and Obstetrics, the reasons for this high rate of CS included factors such as a widespread desire for painless births, lack of infrastructure in delivery units, an insufficient number of qualified midwives, medicolegal concerns of physicians, false beliefs about the process of giving birth, and lack of information.

The demand for elective CS has increased for reasons such as the fear of labour pains, aesthetic concerns, the belief that the

neonatal outcome will be better, and the belief that there will be pelvic floor damage and, associated with that, urinary incontinence could develop and sexual function quality could decrease. However, Blanchette et al. [4] reported that despite the increase in CS rates, there had been no significant improvement in neonatal morbidity and maternal health parameters. It has also been reported that there is an increase in neonatal respiratory morbidity in caesarean deliveries [11].

Silver et al. [10] emphasised an increase in the risk of placenta accreta associated with repeated caesarean deliveries. An increase in cases of placenta accreta has caused an increase in peripartum hysterectomy and postpartum haemorrhage and an associated increase in maternal mortality. In the indications for peripartum hysterectomy, placenta accreta has increased from 5.4% to 46.5%. In cases with a history of CS, the rates of peripartum hysterectomy have risen from 27% to 57% [12]. In the 'Preliminary births for 2004: Infant and maternal health' report of the National Center for Health Statistics, it was stated that approximately 12%-15% of CS were performed on maternal request. It is important that these risks are explained, in particular to patients making their own request for CS.

Özcan et al. [5] reported increased maternal morbidity in patients undergoing multiple CS. When cases of placenta accreta were not included in that study, there was reported to be an increase in adhesions because of repeated CS and an associated prolonged operating time, postoperative infection rates, intestinal and urinary system injuries, and peripartum hysterectomy. Qublan et al. [13] reported similar results, whereas in contrast, Lynch et al. [14] reported that there was no increase in maternal morbidity associated with repeated CS.

In the current study, there was no intestinal injury to any CS patient. In 1 patient of the repeated CS group, there was a bladder injury. All the CS operations of the current study were performed by 2 surgeons (A.O., S.O.) using a similar technique. Due to the possibility of intestinal adhesions, when entering the abdomen, the peritoneum was elevated with 2 clamps and the scissor cut was made in an area where it was certain that there was no tissue adhesion below the peritoneum. The abdomen was entered by widening this cut area. This technique can be considered to reduce the possibility of intestinal injury.

Pallasmaa et al. [2] reported that maternal and neonatal outcome would be good with CS rates below 15% and even at 12.9%. However, that study was conducted in Finland, where all births are in hospitals are free of charge and obstetric care conditions are well-standardised; these factors could be considered to have influenced the results.

The most important way to reduce the rates of repeat CS is to reduce the rate of primary CS. The rate of primary CS in Turkey was 26.3% in 2014. In the current study, the overall rate of 5.7% of primary CS is among the lowest rates in the country. The reasons for this can be listed as:

1. At each antenatal appointment, examination was made by the same doctors, a standard antenatal protocol was applied, and therefore good records were kept.
2. A good relationship of trust was established among the patient, doctor, and midwives.
3. The patient's relatives were with the patient during labour to give support.
4. CS was not performed on maternal request only. According to a statement by the American College of Obstetricians and Gynecologists in 2007, unless there was a maternal and/or fetal indication for caeserean delivery, vaginal delivery is safe and appropriate and should be recommended [15].
5. High-risk patients were transferred. The mean rate of transfer in the study period was 5.4%. If it is considered that CS was applied to all these patients, the total primary CS rate would have been 11.1% (the primary CS rate of 5.7% plus 5.4%). This rate is still lower than that recommended by the WHO [7].
6. The high rate of normal births and postnatal patient satisfaction was an incentive to other patients.
7. The physician took an active role, together with the midwife, in the observation of labour (vaginal exam, NST evaluation, delivery).
8. From the 38th week onward, amniotic membrane stripping was applied to patients planning a vaginal delivery.

In post-term pregnancies, there are risks such as oligohydramnios, macrosomia, shoulder dystosia in delivery, fetal distress, and increased CS rates [16]. Amniotic membrane stripping provides a reduction in post-term pregnancies and in the number of patients for whom formal induction methods are used [17-20]. It has been reported in the Cochrane review that amniotic membrane stripping does not increase maternal and fetal morbidity [18]. It is our opinion that applying outpatient amniotic membrane stripping in polyclinic conditions reduced post-term pregnancies and thereby reduced the rate of primary CS.

In conclusion, a primary CS rate of 5.7% is an extremely low value. This low rate can be attributed to several factors such as informing and encouraging patients about vaginal birth, avoiding CS on maternal request, and applying amniotic membrane stripping at term pregnancies. Further research is warranted to clarify the measures that would be undertaken to reduce caesarean delivery rates.

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Competing interests

The authors declare that they have no competing interests.

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Case Report
JCAM

Chest Wall Leiomyomas: A Case Report and Review of the Literature

Göğüs Duvarı Leiomyomları: Olgu Sunumu ve Literature Özeti

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Özet

Leiomyomlar düz kaslardan köken alan benign yumuşak doku tümörleridir. Plevra ve göğüs duvarı bu tümörler için nadir lokalizasyonlardır. Göğüs duvarında yerleşmiş leiomyomalar, parietal plevranın subplevral bağ dokusundan başlayıp cilt altı dokuya kadar olan göğüs duvarı bölgesinde bulunan düz kaslardan köken alabilir. Literatürde bu tümörler "plevral leiyomyom" veya "chest wall leiyomyom" şeklinde farklı iki isimle tanımlanmışlardır. İster subplevral bağ dokusundan köken alsın, isterse göğüs duvarındaki diğer yapılardan köken alsın her iki grupta benzer radyolojik bulgulara sahiptir ve bu tümörlerin tam olarak nereden köken aldığını tespit edebilmek zordur. Parietal plevranında göğüs duvarının bir parçası olduğu kabul edildiğine göre, bu tümörlerin sadece "göğüs duvarı leiomyomu" olarak adlandırılmasının her iki grubu da kapsayacağını düşünmekteyiz. Olgu sunumunda, 56 yaşında erkek hastada sol hemitoraksta yer kaplayan kitle lezyonu tespit edildi. Rezeksiyon uygulanan hastanın patolojik incelemesinde kitlenin göğüs duvarı leiomyomu olduğu tespit edildi. Olgu, literatür özeti ile birlikte sunulmuştur.

Anahtar Kelimeler

Leiomyom; Göğüs Duvarı; Plevra; Benign

Abstract

Leiomyomas are benign soft tissue tumors that originate in the smooth muscles. Pleura and chest wall are uncommon location for such tumors. Leiomyomas located in the chest wall may originate from smooth muscles of the chest wall region beginning from the subpleural connective tissue of the parietal pleura, to the subdermal tissue. These tumors have been defined in literature using two different terms: "pleural leiomyoma" and "chest wall leiomyoma". Both possess similar radiological signs independent from the tissue from which they originate, which are either subpleural connective tissue or other structures in the chest wall. It is therefore difficult to make a clear determination of the tissue from which they originate. Parietal pleura is also accepted as a part of the chest wall, and thus, in our opinion, the term "chest wall leiomyoma" can be described as comprising both groups. The current study presents a 56-year-old male patient who had a space-occupying mass in the left hemi-thorax. After resection of the mass, pathological examination diagnosed it as chest wall leiomyoma.

Keywords

Leiomyoma; Chest wall; Pleura; Benign

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Introduction

Leiomyomas are benign soft tissue tumors that originate from the smooth muscles and are classified in the mesenchymal tumor family [1]. These benign tumors commonly originate from the urogenital tract, occasionally from the gastrointestinal tract, and rarely from the respiratory tract [2]. Pleural or chest wall leiomyomas are uncommon and atypical tumors, and only 12 cases have been published in the English literature. There have been six cases of pleural leiomyoma and six cases of chest wall leiomyoma presented to date. However, it is difficult to determinate the exact origin of these tumors. As reported below, we present a chest wall leiomyoma case and a review of pleural and chest wall leiomyomas, along with a proposal to combine both groups under one term, "chest wall leiomyomas".

Case Report

A 56-year-old man without any significant past medical history was admitted to the hospital with a complaint of backache for six months. His physical examination and routine laboratory examinations were normal. On radiologic examination, a chest x-ray revealed a well-circumscribed mass in the left hemi-thorax upper zone (Figure-1a). Computed tomography of the thorax revealed a 6 x 5.5 cm, solid, round, well-circumscribed mass lesion that had cystic components and compressed the lung parenchyma without any sign of infiltration (Figure -1b).

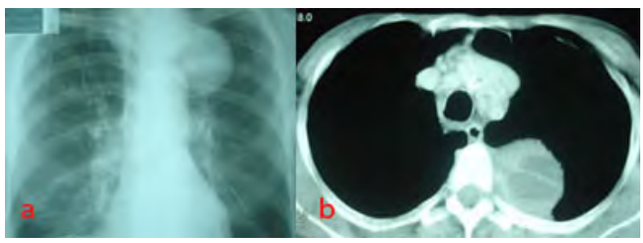

Figure 1. A chest x-ray revealed a well-circumscribed mass(a); Computed tomography confirmed solid, well-circumscribed mass lesion(b).

Our investigations did not reveal an extrathoracic leiomyoma that might lead to a metastasis to the chest wall. A decision was made for surgical excision with left muscle-sparing minithoracotomy. During surgical exploration, an extrapleural, encapsulated, smooth-surfaced chest wall mass, originating from the chest wall and in close association with the fifth intercostal space was observed (Figure-2a). The tumor was covered with the parietal pleura; after dissection of the pleura, it was easily removed en-bloc and excised without difficulty.

The macroscopic examination revealed that the tumor was soft, had a smooth surface, and measured 6 x 6x 5.5 cm. When the mass was dissected with all layers in the midline in two parts, solid, dirty, white, cystic cavities were observed (Figure-2b). The histopathological examination revealed benign spindle cells without mitosis, necrosis, or signs of cellular atypia (Figure 2c). There were randomly arranged, interlacing bundles of smooth muscle differentiation, with fascicles of spindle cells with oblong, bland nuclei without pleomorphism. Immunohistochemical staining revealed diffuse and strong positivity for both smooth muscle actin and desmin. With these findings, the diagnosis of leiomyoma was established without difficulty. The post-operative course was uneventful and the patient was discharged on post-operative sixth day. He was followed-up regularly and there were no signs of recurrence nine years after surgery.

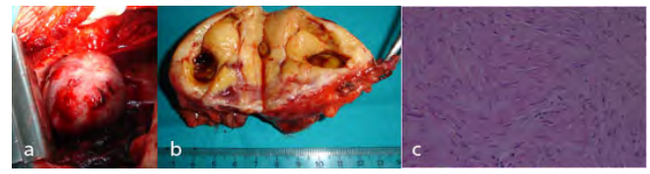

Figure 2. Intraoperative exposure of the mass(a); After the mass was dissected with all layers in the midline in two parts(b); Microscopic examination revealed benign spindle cells without mitosis, necrosis, or signs of cellular atypia(c).

Discussion

Leiomyomas were first described by Virchow in 1854 and can occur in any part of the body where smooth muscles are present [1]. However, leiomyomas originating primarily from the chest wall or pleura are extremely rare. On the chest wall, smooth muscles are located in the connective tissues, commonly in the walls of blood vessels.

The layers of the chest wall from the parietal pleura to the skin are ordered as mesothelial layer of the parietal pleura, superficial elastic layer, subpleural connective tissue layer of the parietal pleura, endothoracic fascia, cartilage and bony skeleton, straight muscles, and finally skin. Subpleural connective tissue is a part of the parietal pleura and this layer contains collagen fibers, elastic fibers, lymphatic network, nerve fibers, and small blood vessels. Leiomyomas located in the chest wall may originate from smooth muscles of the chest wall region beginning from the subpleural connective tissue of the parietal pleura, to the subdermal tissue. In the literature two different terms have been used: "pleural leiomyoma" and "chest wall leiomyoma". However, both groups exhibit a similar radiological appearance independent from the tissue from which they originate.

The origin of pleural leiomyomas are smooth muscles which are located in the wall of small blood vessels. It is known that straight muscles, bony skeleton, and other structures located on the chest wall also have blood vessels, arteries, and veins, which have smooth muscles in their vessel wall. The origins of chest wall leiomyomas are smooth muscles from those feeding or draining vessels. Therefore, the determination of the exact origin of a leiomyoma in the thoracic wall is quite difficult. It can either originate from the subpleural connective tissue layer of the parietal pleura or from straight muscles or other blood-stained tissues of the chest wall. Parietal pleura is also accepted as a part of the chest wall, and thus, in our opinion, the term "chest wall leiomyoma" can be used to comprise both groups. The leiomyomas originating from the subpleural connective tissue located under the parietal pleura are, in fact, leiomyomas of the chest wall.

In the English literature, there have been 12 cases reported. Including the current case, a total number of 13 cases are summarized in Table -1. Of these 13 cases, nine (69.2%) were female and four (30.8%) were male, with the mean age of 38.8 (range: 21-56) years. Four patients (30.7%) were asymptomatic. The most common symptom was chest pain (n=7; 53.9%) followed by backache (n=2; 15.4%). Tumor origins were described as subpleural connective tissue layer in six cases (46.2%) and chest wall structures in seven cases (53.8%).

Both groups had similar radiological findings. Both those tumors, whether originating from the subpleural connective tissue layer of the parietal pleura or from straight muscles or

Table 1. Chest wall or pleural leiomyoma cases, published in the literature.

Author	Year	Age	Gender	Symptom	Origin	Surgery	Survive
Moran et al. [10]	1995	23	Female	Asymptomatic	Pleura	Incompletely resected, surgery type not mentioned	6 months without (w/o) recurrence
Moran et al.	1995	21	Female	Asymptomatic	Pleura	Incompletely resected, surgery type not mentioned	4 months w/o recurrence
Proca et al.	2000	32	Male	Asymptomatic	Pleura	Thoracotomy, chest wall resection	12 months w/o recurrence
Nose et al.	2006	55	Female	Asymptomatic	5th intercostal space	Video assisted thoracic surgery	26 months w/o recurrence
Turhan et al.	2007	50	Female	Chest pain	Pleura	Thoracotomy	53 months w/o recurrence
Ziyade et al.	2009	33	Female	Chest pain and heartburn	2nd rib	Thoracotomy	14 months w/o recurrence
Rodriquez et al.	2009	48	Female	Pleuritic pain and dyspnea	Pleura	Thoracotomy	18 months w/o recurrence
Tuncer et al.	2011	38	Female	Backache	6th rib	Thoracotomy	16 months w/o recurrence
Qiu et al.	2011	45	Male	Chest pain	Pleura	Thoracotomy	15 months w/o recurrence
Nakada et al.	2013	28	Female	Chest pain	5th intercostal space	Thoracotomy, chest wall resection and reconstruction	2 months w/o recurrence
Kanlioglu et al.	2014	32	Female	Chest pain	Chest wall (2 separate masses)	1) Thoracotomy 2) Re-thoracotomy, chest wall resection and reconstruction	1) Recurrence after 12 months follow-up after first operation 2) 45 months follow-up w/o recurrence
Kanlioglu et al.	2014	43	Male	Chest pain	7th rib	Thoracotomy, chest wall resection and reconstruction	40 months follow-up w/o recurrence
Yazicioglu et al.	2016	56	Male	Backache	5th intercostal space	Muscle-sparing, mini-thoracotomy	115 months follow-up w/o recurrence

other blood stained tissues of the chest wall, will extend to the location where they are subjected to minimal tissue resistance. As the intrathoracic space provides the least tissue resistance, the tumor growth into the thoracic space is normal for all types of chest wall leiomyomas. In the literature, only two cases reported tumor growth into the thoracic wall. Kanlioglu et al. mentioned a chest wall leiomyoma case who had a mass which destroyed the seventh rib [3]. Nakada et al. presented a case report in which a leiomyoma originated from the chest wall and grew into the chest wall [4]. Other case presentations had radiological findings similar to our case and all of them, regardless of origin reported a mass growth into the intrathoracic space.

On the other hand, benign tumors of the pleura or chest wall cannot be differentiated by radiological methods and the final diagnosis can only be established by histological examination. Complete surgical excision is recommended not only for establishing the diagnosis, but also to relieve and prevent symptoms and to eliminate the possibility of degeneration into a malignant tumor [5,6]. The preferred resection type was mentioned in 11 case reports, and thoracotomy was the type of approach in the majority of cases (n = 10; 90.9%). Only Nose et al. completely resected the tumor via minimally invasive surgery [7]. Chest wall resection is usually not required, but was added to surgery in four patients (36.4%). Kanlioglu et al. presented two cases, both of them requiring chest wall resection and reconstruction [3]. Additionally, in the case reports of both Nakada et al. and Proca et al., the authors completely resected the tumor with chest wall resection [4,8].

The prognosis is fairly good for patients in whom tumors have been completely resected. The recurrence of chest wall leiomyoma is uncommon. Only Kanlioglu et al. mentioned a case that had recurrence of the tumor at 12 months follow-up following the first operation [3]. The authors performed a second operation that included chest wall resection and reconstruction. They reported, disease-free survival of 45 months without regional or systemic recurrence in a published case study. Our case had the longest disease-free survival rate of 115 months, followed by Turhan et al.'s case with survival of 53 months [9].

None of the cases reviewed in the literature reported malignant degeneration. The chest wall consists of many layers that extend from the parietal pleura to skin. We consider that it is too difficult to determine the exact origin of a leiomyoma that originates from the subparietal pleura and grows into the chest wall or that of a tumor which originates from other layers of the chest wall and which grows into the subpleura. We also consider that a determination of the exact origin of the leiomyoma would not make any useful contribution to the diagnosis, treatment, and surgical approach of the case. Thus, these tumors called ''chest wall leiomyoma'' are generally benign, and are resected completely. We recommend complete resection to cure and long-term follow-up for all cases.

Competing interests

The authors declare that they have no competing interests.

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Review
JCAM

A Study of Some Leading Organ Transplant Models in Health Care Systems

Sağlık Sistemlerinin Önde Gelen Bazı Organ Nakli Modelleri Açısından İncelenmesi

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Özet

Organ yetmezlikli hastalarda en etkili tedavi yöntemi organ naklidir. Organ nakli olmayı bekleyen çok sayıda hasta olmasına rağmen, organ temininde yaşanan yetersizlikler dünya genelinde kronikleşen bir sağlık sorunudur. Organ teminine çözüm bulmak amacıyla ülkeler sağlık sistemlerinde düzenlemeler yapmış ve bunun sonucunda bazı organ nakli modelleri oluşmuştur. Bu çalışma ile İspanya, ABD, Avrupa Birliği, İran ve Türkiye'de uygulanmakta olan bazı organ nakli modelleri incelenecektir.

Anahtar Kelimeler

Organ; Organ Nakli; Organ Nakli Modelleri; Sağlık Sistemleri

Abstract

The most effective treatment method for patients with organ failure is an organ transplant. Although numerous patients are waiting to get organ transplants, the inadequacy in the supply of organs has become a chronic health problem around the whole world. Countries have made various regulations in their health systems that increase the supply of organs and, as a result, various organ transplantation models have been established. Organ transplantation models applied in Spain, the USA, the European Union, Iran, and Turkey have been examined in this study.

Keywords

Organ; Organ Transplant; Organ Transplant Models; Health Systems

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Introduction

Organ transplants are the most efficient method of treatment for patients with organ failure, offering them a chance to live and enhancing their quality of life [1-3]. While the number of patients waiting for organ transplants continues to increase there are still significant shortcomings in organ supply [4]. The current number of patients on the waiting list in the United States is 118,661 [U.S. Department of Health & Human Services, National Survey of Organ Donation Attitudes and Behaviors 2012], the number of patients on the Eurotransplant list, which represents 8 European Union countries, totals 14,560, while the numbers for Spain are 7,290, 1,319 for Iran, and 28,249 in Turkey [5,6].

Health systems vary from country to country and therefore so do the health applications. There are many determinant factors involved, such as economic resources, population, the law, technology, infrastructure, geographical conditions, social and cultural characteristics, etc. The transplant systems of organs and tissue also vary according to the health systems of the countries.

Spain (ONT)

Spain has the highest rate of organ donation following brain death among countries. In this aspect it is the locomotive of the world. In Spain, organ and tissue transplants are realized by the national transplant organization, ONT, established in 1989 (Organizacion Nacional de Transplantes) and affiliated with the Ministry of Health [7,8].

The relevant law covering organ transplants was published in 1979. According to this law, if not otherwise stipulated, the organs of brain-dead individuals can be harvested. In other words, if citizens have not stipulated otherwise it is deemed that they have accepted the donation of their organs. This opt-out system is an important difference of the organ transplant organization in Spain, referred to as the Spanish model. However, in practice, usually the relatives of donors are asked for permission. Nevertheless due to the culture of the society and the sufficient awareness of citizens, even seeking permission does not have a negative impact on organ donation. The notification of brain death is rapid; the fact that the organ transplant coordinators are educated in their field fortifies the system [9-12]. The rate for cadaveric organ donations has continued to increase over previous years and was established as 34.4 per million population in 2013 [13].

The United States of America (UNOS)

The organ and tissue transplant organization of the United States of America was established in 1977 and is currently operated by the organ network UNOS (United Network for Organ Sharing) which began operation in 1984 [14,15].

UNOS operates in affiliation with the U.S. Department of Health and Human Services. It serves in 11 geographical areas with 58 organ supply centers. Patients who are considered for transplantation are presented to the transplant center council by the patient's doctor and if found appropriate, the patient is registered on the waiting list [16, 17]. The cadaveric organ donation rate is 26.3 per million population [13].

European Union Countries (Eurotransplant)

Eurotransplant has been established by 8 European countries: Austria, Belgium, Croatia, Germany, Hungary, Luxembourg, the Netherlands, and Slovenia. This international cooperation covers organ donations, tissue typing laboratories, and hospitals. The organization was established in 1967 by Jon J. van Rood and is headquartered in the Netherlands [18].

The organization of organ and tissue transplants is carried out by Eurotransplant in the member countries. The objective is to transplant organs to the most appropriate patients within a framework of medical and ethical values. Thus, it is targeted to enhance the results of the process and transplants [19]. The highest rate per million population from cadaveric donations in this organization is in Croatia with 33.7 while the lowest is 7.3 in Luxembourg. The average rate for Eurotransplant is 14.9 per million population [Eurotransplant International Foundation, Annual Report 2014].

Iran

The organ transplant system applied in Iran is the most controversial system in terms of ethics and organization. The first kidney transplant was carried out in 1967. The transplants performed in this country from 1967 to 1988 have continued at an inadequate level and many patients on the waiting list have been lost. As a result, the application of a system called the Iranian model was started in 1988 [20-22].

Patients with end-stage renal failure without relatives who are suitable donors are directed to the state-controlled Dialysis and Transplant Patient Association (DATPA) by their doctors. Due to the challenge in organ supply, the Iranian government has requested that those who want to may apply to this association to sell their organs. The necessary tests and checks for the patients and donors are carried out by university hospitals and registered on a central system. Subsequently the most appropriate recipients and donors are matched. Organ donors receive money from the state under the title award as well as medication support and lifelong health coverage. The system operates under various rules. The first rule is that the recipient and donor do not know each other. The second is that the person benefiting from the system must be an Iranian citizen [21-23].

The relevant legislation to ensure cadaveric organ donations was ratified by the Iranian parliament in 2000 and cadaveric transplants started. However, due to religious and cultural reasons the level of cadaveric transplants is not adequate [24].

The Iranian model ensured that there were no patients waiting for kidneys by the end of 1999. By the end of 2012 a total of 34,166 kidney transplants had been carried out, including 4436 from cadavers. Debates are caused from an ethical perspective regarding the fact that trade in organs is carried out under the strict control of the state and by the state. Iran has 302 dialysis units, 25 transplant centers, and 80 DATPA offices and it carries out the most organ transplants in the Middle East [20,25].

Turkey

In Turkey, organ and tissue transplant activities are planned and carried out under the control of the R.T. Ministry of Health. In the year 2000 the 'Organ and Tissue Transplant Services Department Directorate' and 'National Organ and Tissue Transplant Coordination System (UKS)' were established within the General Directorate of Treatment Services of the Ministry of Health, initially to coordinate organ transplant activities through a central system. The overall operation of this system had been carried out over the telephone and by facsimile and printed forms by the National Coordination Center (UKM) within the UKS by doctors and nurses working 24/7. A computer-based and internet-supported central system was developed in 2007

and subsequently revised in 2011. Thus the monitoring of the distribution of all organs and transplant centers, patients, and donors has been transferred into an electronic setting [26,27].
The objective in establishing the National Organ and Tissue Transplant Coordination System was to ensure necessary coordination and supervision among organizations and agencies throughout the country involved in organ and tissue transplant services and to ensure that donated organs and tissues are distributed fairly to the most appropriate patient within the shortest time, in compliance with scientific rules and an understanding of medical ethics [Turkish Ministry of Health, Regulation of organ and tissue transplantation services 2012].
Nine Regional Coordination Centers (BKM) were established to ensure the efficient and rapid operation of the system aligned with the geographical, technical, and economic conditions of the country. The centers are located in the provinces of Izmir, Istanbul, Antalya, Samsun, Adana, Bursa, Erzurum, Ankara, and Diyarbakır; they coordinate the organ transplant activities of affiliated provinces [28].

Discussion

There are 105 organ and tissue transplant centers in the country. In 2015 1,969 brain deaths were determined, but the organs of only 472 donors could be harvested. The organ donation rate is approximately 6.1 per million population. The main obstacle for organ transplantation is the legislative requirement to acquire the permission of the family for organ donation. Since 2011, a total of 15,729 kidney, 405 heart, 5,919 liver, 130 lung, 20 small intestine, 9 heart valve, 57 pancreas, and 12,404 corneal transplants have been carried out while the current waiting list for transplants consists of 22,461 patients waiting for kidneys, 662 patients for heart transplants, 2,251 liver patients, 53 prospective lung recipients, 2 patients waiting for small intestines, 3 heart valve recipients, 2,533 patients waiting for corneas, and 271 pancreatic patients [19]. Additionally, while about 75% of organ transplants in Turkey are undertaken with the organs of healthy individuals, more than 80% of organ transplants in European countries are undertaken with the organs of cadavers. Turkey is a country where the highest number of organ transplants from healthy individuals occurs [29,30]. Although there has been a successful increase in transplantation activities in Turkey, when these numbers are compared with the numbers of waiting patients, the activities are evaluated as inadequate.
In conclusion, organ transplant models with varying characteristics are utilized. Each model has its advantages and disadvantages and differing ethical dimensions, making is difficult to determine the best model. The common objective of all models is to provide the most appropriate organs to patients with organ failure and to ensure them a quality life. It is recommended that health policymakers and administrators organize programs that enhance the knowledge and awareness levels of communities regarding issues related to organ transplantation. A comparison with other models should be undertaken and activities that could improve the models should be executed.

Competing interests

The authors declare that they have no competing interests.

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Lung Aplasia with Pulmonary Artery Sling Like Anomaly

Akciğer Yokluğu ile Birlikte Pulmoner Arterin Sling Benzeri Anomalisi

Lung Aplasia

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A 1-year-old girl was admitted to our hospital with the complaints of dyspnea on effort, cough and sputum. Physical examination by auscultation revealed no breathing sound on the right hemithorax. Posteroanterior (PA) chest X-ray showed compensatory hyperinflation of the left lung, mediastinal shifting to the right and total absence of the right lung and the left hemithorax was normal. Complete blood count and biochemical analysis were completely normal. Her oxygen saturation on room air was 95%. Transthoracic echocardiography reavealed normal cardiac anatomy except right pulmonary artery. Neither lung parenchyma nor pulmonary vascular structures could be visualized at the right side on the thorax by 3D reconstruction of computed tomography (CT) examination (Figure 1,2), and the left lung and mediastinal structures were found to be shifted to the right. Additionally main pulmonary artery gives rise only to left pulmonary artery and the left pulmonary artery courses the right side of the trachea and goes to left lung hilus. In fiberoptic bronchoscopy, the right main bronchus was shown to ended immediately as a bronchial stump. This anomaly seems like pulmonary artery sling but in CT and bronchoscopy left bronchus had not any obstruction at its course to left lung hilus and also left pulmonary artery had not any obstruction at angio CT study. So we called this anomaly sling like and did not plan any surgical intervention. The patient discarded asymptomatically after recovery of lower respiratory tract infection.

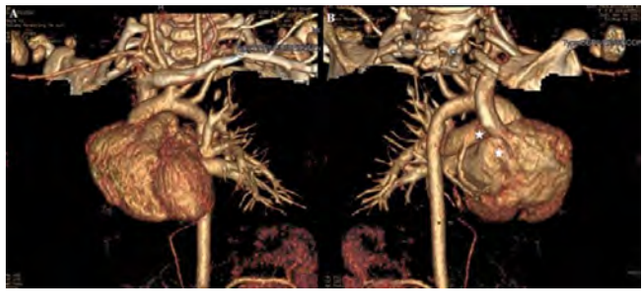

Figure 1. Anterior (A) and posterior (B) view of pulmonary vascular structures. 3D reconstruction of CT angiography show absence of pulmonary artery and veins on the right side (asteriks).

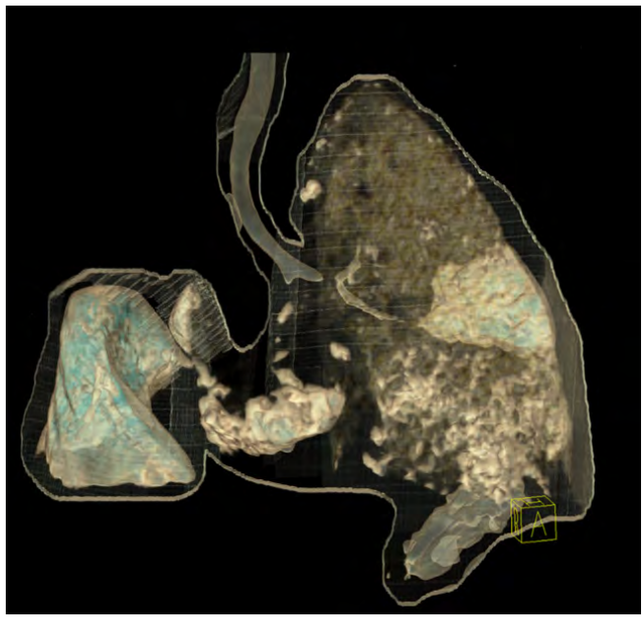

Figure 2. 3D reconstruction of CT image shows the left lung having a normal volume. On the contrary, the right lung is not seen with the existing right bronchus having blind-ended branches.

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An interesting view of the trachea and main bronchi as if it is drawn with a pencil: Tracheobronchopathia osteochondroplastica

Trakea ve Ana Bronşların Sanki Kalemle Çizilmiş Gibi İlginç Bir Görüntüsü: Tracheobronchopathia Osteochondroplastica

Tracheobronchopathia

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[1]Department of Radiology, [2]Department of Thorasic Surgery, Bozok University Medical Faculty, Yozgat, Türkiye

A 62 year old nonsmoker man presented with increasing shortness of breath, wheeze, dry cough and multiple episodes of hemoptysis from past 5 years. His clinical examination and multiple chest X-rays taken over the years were normal. Spirometry revealed a mild obstructive airway disease but bronchoscopy was not performed as the patient did not give consent for the procedure. The CT scan that lead to the diagnosis in our patient showed deformed, thickened and narrowed tracheal wall. There were irregular spaced 1-3 mm calcific submucosal nodules of trachea and the main bronchi extending to small airways which were similar to plaque. Tracheobronchopathia osteochondroplastica is a rare benign disorder with unknown etiology, characterized by the presence of subepithelial osteo cartilaginous nodules projecting into the tracheobronchial lumen. Recently, disease has subdivided as tuberosa (degenerative changes with nodule formation and ossification) and peripherica (diffuse degeneration of the trachea which is almost exclusively only found during autopsy) according to the type of tracheal ossification and nodule formation. Cough not responding to usual medical treatment, recurrent hemoptysis and breathlessness are the most common symptoms. The treatment of this disease is unknown as it cannot be confirmed by a major control study because of the rarity of the disease. If there is localized disease, possible resection of the affected area may be attempted but most common chose is medical treatment .The patient was discharged with symptomatic treatment and was asked to follow up within 6 months period.

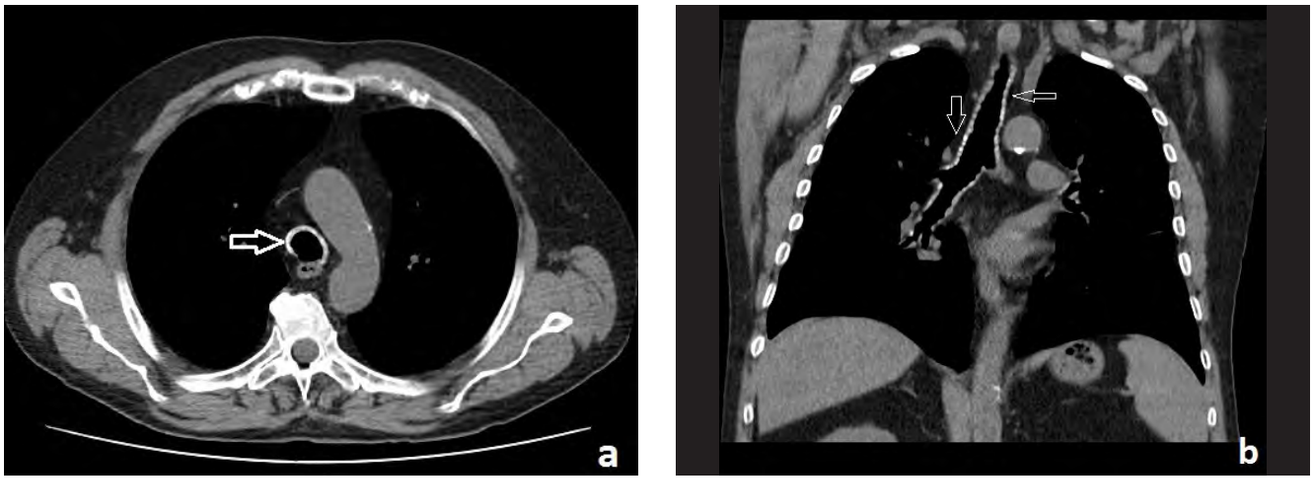

Figure 1. Axial (a) and coronal (b) views of high resolution CT thorax showing calcification and submucosal nodular pattern (arrows) along the trachea and major bronchi.

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Original Image
JCAM

8500g of Uterus Torsion

8500g Uterus Torsiyonu

Giant Uterus Torsion

Kadir Bakay
Baskent Universitesi Alanya Uygulama Merkezi, Kadın Hastalıkları ve Doğum Kliniği, Antalya, Alanya, Türkiye

53 years old multiparous patient presented with acute serious abdominal pain and mental confusion. Upon examination a huge solid mass filling the entire abdomen was observed. Laparotomy was decided, during the operation uterus was observed as a giant torsioned solid mass. Abdominal hysterectomy was performed and after pathological examination was also in favor of torsion, patient was discharged without any complications.

Figure 1. Size comparison

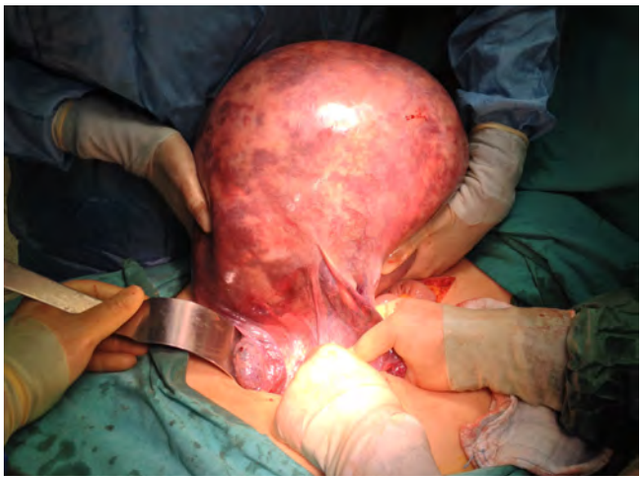

Figure 2. Uterus detorsioned for hysterectomy

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A Rare Clinical Entity: Diaphragmatic Hydatid Cyst

Nadir Bir klinik Durum: Diyafragmatik Kist Hidatik

Diaphragmatic Hydatid Cyst

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A 58 years old male was admitted to our hospital due to the right lower chest pain, he was operated ten years ago due to the liver cyst hydatid. The chest computed tomography was demonsrated a cystic lesion in the right lower zone of thorax and diaphragmatic localization (105x80 mm) (Figure 1). He was operated via the right toracotomy and the cystic lesion was detected between the diaphragm layers (Figure 2a, 2b). Cystotomy and capitonage was done, and he was discharged on the seventh postoperative day uneventfully.

The incidence of diaphragmatic hydatid cysts is very rare. Preoperative diagnosis of complicated hydatid cysts located at the diaphragm is difficult. On the other hand there have been only a few reports of primary diaphragmatic hydatid cysts without being in lung or liver in the literature [1]. In conclusion when the cystic lesion was localized on the lower zone of thorax or upper zone of abdomen, we must suspect diaphtagmatic hydatic cyst.

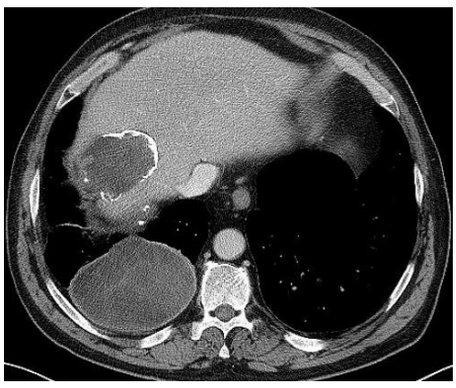

Figure 1. Preoperative chest computed tomography image: Diaphragmatic hydatid cyst and old liver cystic lesion is seen.

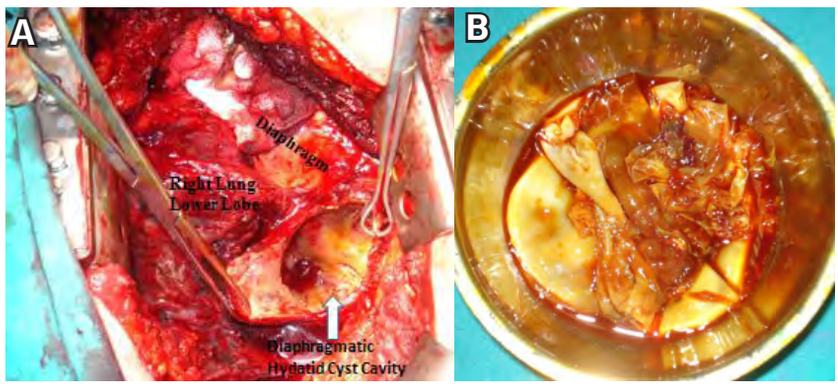

Figure 2. Peroperative images. Diaphragmatic hydatid cyst(A) and, Germinative membrane(B).

Reference

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Original Image
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Superior Vena Cava Syndrome Caused By A Goiter

Vena Kava Superior Sendromuna Sebep Olan Guatr

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Süreyyapaşa Chest Diseases and Thoracic Surgery Training and Research Hospital, Istanbul, Turkey

Superior vena cava syndrome usually occurs due to malignant diseases; however it may also arise as a cause of several benign situations. The clinical case of a male patient suffering a benign retrosternal goiter, which first appeared as a superior vena cava syndrome is presented. Patient had facial erythema and jugular vein distension (Fig.1) in upright position, which progressed to cyanosis and facial edema while keeping both arms elevated (Pemberton's sign). After confirming the diagnosis with a thoracic CT scan (Fig.2 – Fig.3), a subtotal bilateral thyroidectomy was performed (Fig.4), resulting in a complete remission of the clinical picture. First reported in 1946, Pemberton's maneuver is a practical and valuable, but unrecognized clinical sign for oligosymptomatic superior vena cava syndrome caused by retrosternal masses.

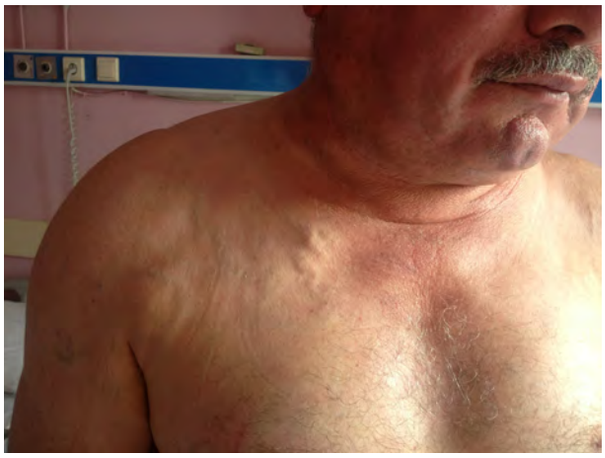

Figure 1. Gradual compression of the SVC, causes distension of the superficial veins in the chest wall

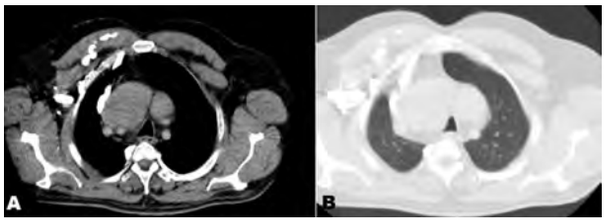

Figure 3. Mediastinal (A) and parenchymal (B) cross section computed tomography scans of vena cava superior compression

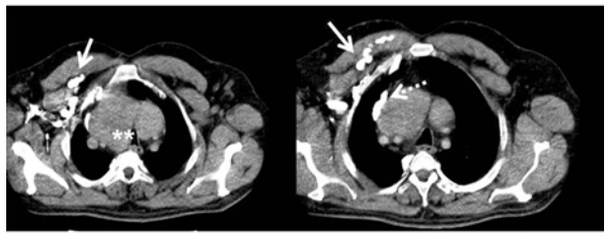

Figure 2. Thorax computed tomography indicating retrosternal goiter (**) compressing vena cava superior (dotted arrow), and the dilated superficial veins (white arrows)

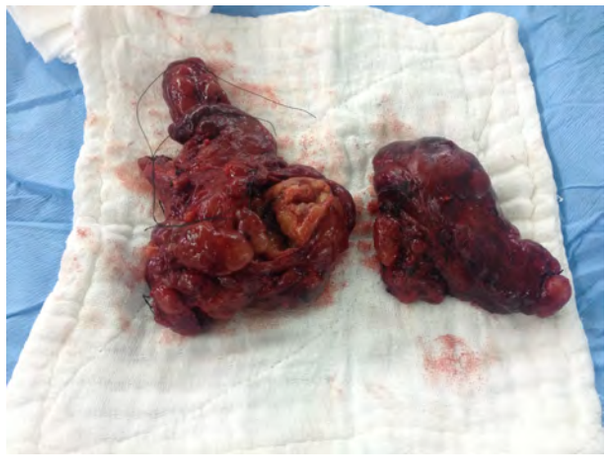

Figure 4. Surgical specimen of the retrosternal goiter

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Small Bowel Perforation Due to Glass Particle in a Patient Without History of Swallowed Foreign Body

Yabancı Cisim Yutma Hikayesi Olmayan Bir Hastada Cam Parçasının Yol Açtığı İnce Barsak Perforasyonu

Smallbowel Perforation Due To Glass Particle

Şahin Kaymak, Rahman Şenocak, Zafer Kılbaş
Gulhane School of Medicine, Department of Surgery, Ankara, Turkey

A 43 year-old female patient presented to the emergency department with complaints of suddenly beginning constant abdominal pain for 2 days. On her physical examination, tenderness in the left upper quadrant was detected. No abnormal results were detected except for 86% neutrophils (40% to 73%) in laboratory examinations. In radiological examinations, direct abdominal x-ray and abdominal ultrasonography were reported as normal. Contrast enhanced abdominal tomography revealed unexpectedly a foreign body in the proximal intestine and free air supporting microperforation adjacent to small bowel (Figure 1). She did not have any previous surgical interventions and she denied any previous traumas but traffic accident. Patient reporting any history of foreign body ingestion in her detailed history underwent emergency diagnostic laparoscopy. At laparoscopic exploration, no additional pathologic findings were detected except for sero-purulent free fluid among intestinal loops, Douglas and left paracolic space. A foreign object with bilateral sharp tip, longitudinally located, 3x35 mm in diameter was found out approximately 50 cm distal to the Treitz in open exploration (Figure 2). Moreover, perforation with a diameter of about 3-4 mm was seen on adjacent mesenteric bowel wall. Foreign body was removed without enterotomy. Both microperforated defect and orifice from which foreign body removed were oversewn with primary repair (Figure 3). The postoperative period was uneventful, and the patient was discharged within 4 days. It can be logically concluded that fragmented window pieces might have been ingested unconsciously in a traffic accident. We present this case to increase awareness of the diagnosis. Because patients rarely recall the episode of the ingestion, or may remember the incident only after a diagnosis is made.

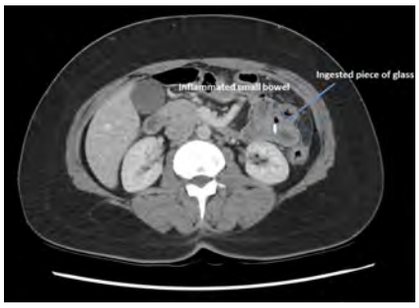

Figure 1. Preoperative CT imaging of small bowel perforation resulting from foreign body ingestion. Preoperative CT evaluation of the patient's abdomen noted a small pocket of mesenteric free air, inflammated segment adjacent to a loop of jejunum and a small radiopaque intraluminal object.

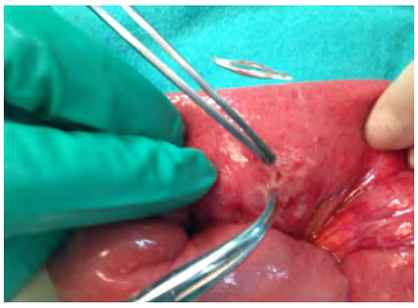

Figure 2. Bowel was manipulated demonstrating a glass particle extending through the antimesenteric wall of jejunal segment.

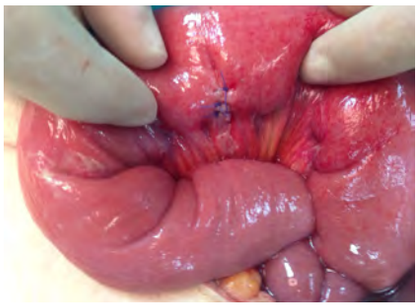

Figure 3. the object was gently removed from the bowel, and the perforated areas were oversewn using 2–0 monocryl suture.

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Massive Abdominal Wall Hematoma Due to Low Moleculer Weight Heparine

Düşük Molekül Ağırlıklı Heparine Bağlı Masif Abdominal Duvar Hematomu

Hematoma due to Enoxaparine

Suleyman Deniz, Gokhan Inangil
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Low moleculer weight heparin (LMWH) is commonly used for prophylaxis against deep venous thrombosis [1, 2]. But these medications can lead injection site complications like abdominal wall hematoma rarely [3]. The risk of bleeding may increase in elderly population especially when the length of stay in intensive care unit (ICU) increases [4]. We report a case with massive abdominal wall hematoma that needed transfusion due to LMWH. 49 year old woman (108 kg 1.68 m with BMI: 38) was admitted ICU after postoperative menengioma surgery with score of Glaskow Coma Score 4. On 30th day 6000 IU/0,6 enoxaparine sodium was planned for deep venous trombosis prophylaxis. On the 136th day of her ICU stay her abdomen was slightly distended with echymosis and her haemoglobin level decreased rapidly to 6.2 from 8.9. Platelet count were 157,000/µL. With physical examination large enduration area with dimensions 12x14 cm noted (Figure 1). Ultrasonography of abdominal wall with curved array probe (5-2 MHz Sonosite M-Turbo C60x transducer) showed a large partially organised hematoma 6.58 x 5.45 cm (Figure 2). 2 U of erithrocytes suspension and 2 U of fresh frozen plasma planned.

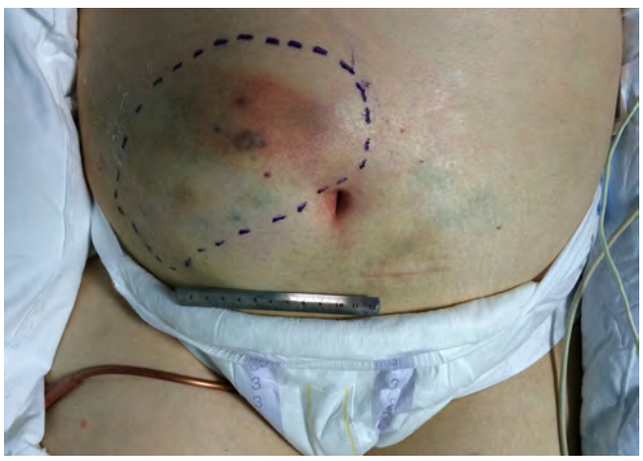

Figure 1. The hematoma external appearance

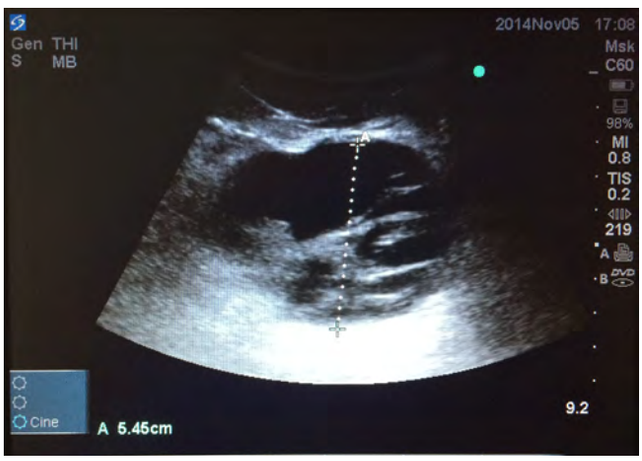

Figure 2. The hematoma ultrasonographic appearance

References

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Bleeding Caecal Angiodysplasia Diagnosed by CT-Angiography

BT-Anjiografi İle Tanı Konan Kanamalı Çekal Anjiyodisplazi

Caecal Angiodysplasia

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A 71-year old male patient was admitted to ER because of active rectal hemorrhage. At admission, only low haemoglobin level (8.3 g/dl) was found within laboratory tests. He had no history of gastrointestinal (GI) bleeding. His physical examination was unremarkable, and no abnormality was detected on digital rectal examination. Upper GI endoscopy was also normal. Colonoscopy failed due to gross blood. Computed tomography (CT)-angiography detected a bleeding submucosal vascular ectatic area, 16 mm in size, at the medial wall of the caecum (Figure 1A, B). Since the bleeding did not stop by angiographic intervention, right hemicolectomy was performed. Histopathology demonstrated dilated submucosal vessels with mild dysplasia, consistent with angiodysplasia. He was discharged without any problem on seventh day.

Vascular lesions are common causes of lower GI bleeding, and can be classified into different subtypes, including angiodysplasia, arteriovenous malformation, and vascular ectasia. Among those, angiodysplasia is generally seen in elderly patients, and can cause both occult and massive lower GI bleeding. It may also be asymptomatic, and can incidentally found at screening colonoscopy [1]. Although the bleeding ceases spontaneously in the vast majority of cases [2], some patients need endoscopic, angiographic, or surgical interventions due to non-stopping or recurrent bleeding. In case of failure of endoscopic and angiographic interventions, surgery should be performed immediately.

In conclusion, angiodysplasia is an infrequent cause of lower GI bleeding, and requires timely diagnostic and therapeutic interventions. Treatment of these lesions should be individualized depending on severity of disease, and a multidiciplinary approach should be required for best outcomes.

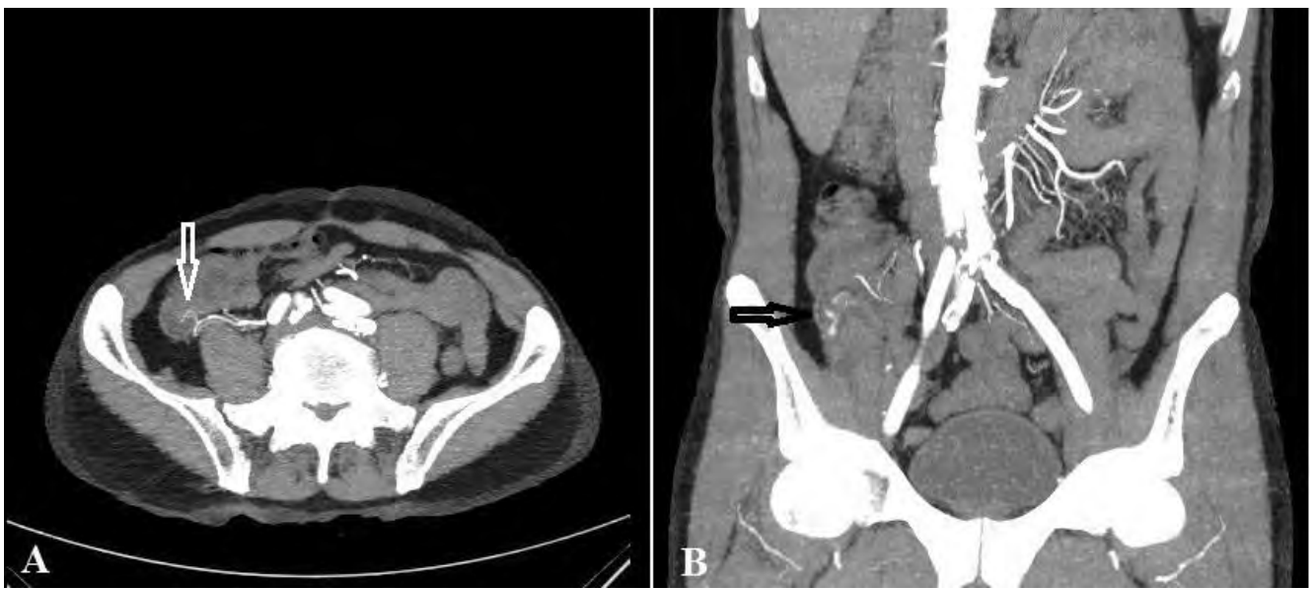

Figure 1A, B. The bleeding caecal angiodysplasia on two images (A, B) of CT-angiography (arrows show the lesion located at the medial wall of the caecum)

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Liver Injury Caused by a Swallowed Foreign Body in a Patient with Schizophrenia

Bir Şizofren Hastada Yutulmuş Bir Yabancı Cismin Neden Olduğu Karaciğer Yaralanması

An Unusual Liver Injury

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[1]Clinic of General Surgery, Numune Training and Research Hospital,
[2]Clinic of Anesthesiology and Reanimation, Dr. Abdurrahman Yurtarslan Training and Research Hospital, Ankara, Turkey

Although foreign bodies ingestion occurs commonly in children, it is also seen in adults with several associated factors, such as alcohol consumption, psychiatric disorders, and mental retardation [1]. Most of the ingested foreign bodies pass through the gastrointestinal (GI) tract without any problem. However, GI perforation may develop in less than 1% of these patients [2]. Furthermore, penetration of the foreign body from GI tract to the liver is a rare entity, and only few single cases have been reported in the literature [3].

A 45-year-old male patient presented to emergency room with acute abdomen findings. He had a diagnosis of schizophrenia for more than 20 years. At admission, his vital signs were normal, but more than one foreign bodies located at the middle and right upper quadrants were seen at abdominal X-ray (Figure 1). Computed tomography revealed a giant subcapsular hepatic hematoma, 10×5 cm in size, caused by a foreign body, resembling a spoon or knife, between stomach and the left lobe of liver (Figure 2A, B). There was not another organ injury. An emergent operation was planned, but the patient left the hospital without notice.

Penetration of an upper GI foreign body to the abdominal organs such as liver is an extremely rare life-threatening condition, and should be kept in mind especially in patients with psychiatric disorders such as schizophrenia.

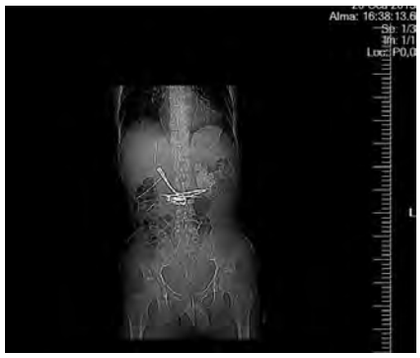

Figure 1. The X-ray view of the foreign bodies located at the middle and right upper quadrant of the abdomen.

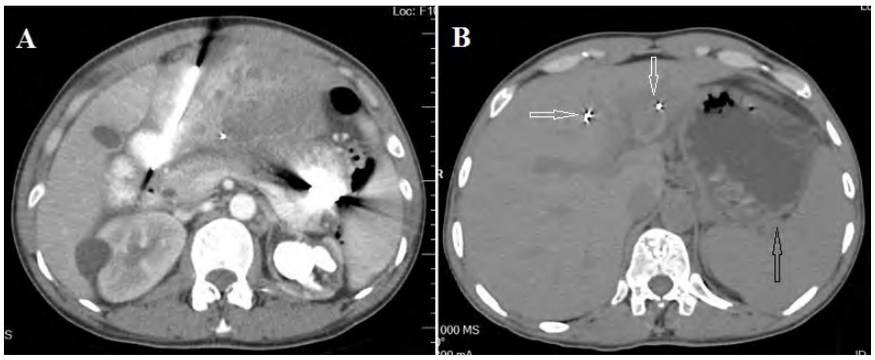

Figure 2. The tomographic image of the shinny foreign bodies(A). The image of the subcapsular hematoma of the liver (black arrow) with the images of shinny foreign bodies (white arrows)(B).

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A Sail-like Glass Piece into the Cervical Esophagus

Servikal Özofagusta Yelkene Benzeyen Cam Parçası

Glass into the Esophagus

Murat Öncel, Güven Sadi Sunam, Hüseyin Yıldıran
Göğüs Cerrahisi A.D., Selçuk Üniversitesi Tıp Fakültesi, Konya, Türkiye

The esophageal foreign bodies have importance because they have serious morbidity and mortality by esophageal perforation [1]. 25 -year-old male patient with mental retardation who had history of convulsions since the age of 5 years, admitted the emergency department by discomfort in the throat. About 4 hours ago, as he was drinking coke by the glass, the glass had broken and he felt dysphagia. In physical examination, the patient's extremities and facial muscles in neck had spasticity, he had no orientation and his cooperation was limited. Examinations of his oropharynx was unremarkable and he had hypersalivation. The glass piece was shown by radiological imaging located at cervical part of esophagus (Figure 1). The rigid esophagoscopy was performed and the glass piece was removed by Magill forceps (Figure 2). Esophageal mucosa was intacted. Postoperatively, the patient was relieved of the discomfort swallowing , and could accept both solid and liquid foods orally. He was discharged 24 hours later. The treatment depends on the clinical status of patient and type of foreign body. Endoscopy is the most common and safe procedure. However, the foreign bodies at the first narrow of esophagus can be removed by Magill forceps [2]. If the foreign body can not be removed by endoscopy or esophageal perforation occurs, surgery should be planned.

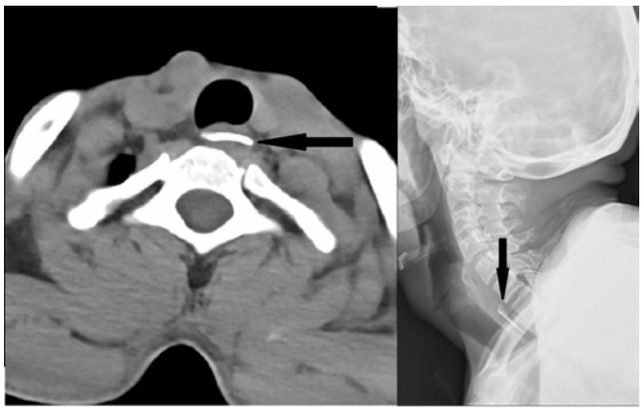

Figure 1. Radiological imaging of the piece of glass in computed tomography and X-ray

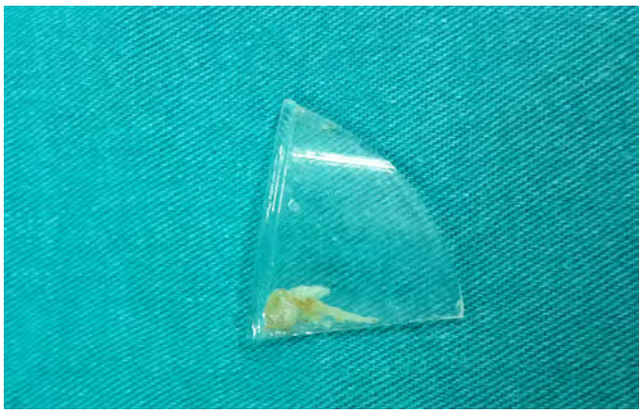

Figure 2. The piece of glass

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Ortner Syndrome Due to Aortic Aneurysms

Aort Anevrizmasına Bağlı Ortner Sendromu

Ortner Syndrome Due to Aortic Aneurysms

Levent Özdemir[1], Burcu Özdemir[2]
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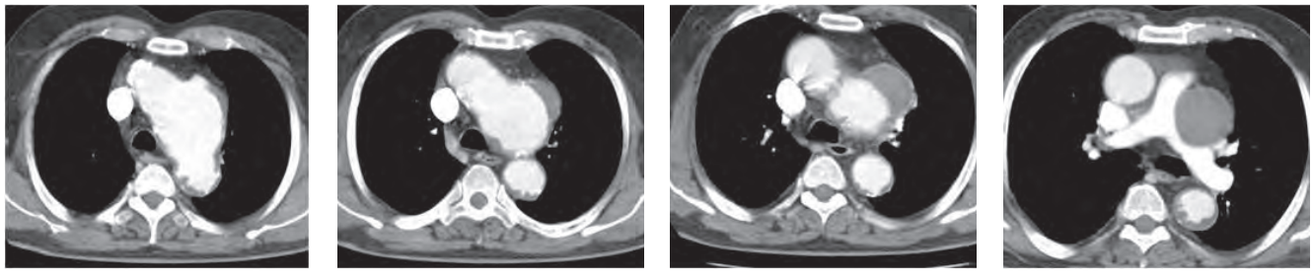
Ortner sendromu; sol rekürren larengeal sinirin sol atrium hipertrofisi, pulmoner hipertansiyon yada aort anevrizması gibi kardiyak patolojilere sekonder olarak pulmoner arter ile aort yada aortik ligaman arasında sıkışması sonucu, sol vokal kordda paralizi ve buna bağlı ses kısıklığı gelişmesi olarak tanımlanmaktadır.

77 yaşında erkek hasta, göğüs ön bölgede ağrı, öksürük, nefes darlığı ve ses kısıklığı nedeni ile değerlendirildi. Özgeçmişinde 40 paket yıl/ sigara ve hipertasinyon mevcuttu. Fiziki muayenesinde bilateral tüm zolarda ronküs mevcuttu. İndirekt laringoskopik bakısında sol kord vokalde paralizi saptandı. Aortaya yönelik yapılan BT anjiyoda arkus aortada 7.5 cm lik parsiyel tromboze anevrizma ve anevrizmaya sekonder pulmoner trunkus ve sol ana pulmoner artere belirgin basılanma mevcuttu.



Resim 1-4. Arkus aortada 7.5 cm lik parsiyel tromboze anevrizma ve anevrizmaya sekonder pulmoner trunkus ve sol ana pulmoner artere belirgin basılanma

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Osteoporosis After Spine Cord Injury

Spinal Kord Yaralanması Sonrası Osteoporoz

Diffuse Vertebral Osteoporosis

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Osteoporosis after spinal cord injury is a well-known pathological consequence and it depends on many different factors like loss of mechanical integrity, hormone disregulation, bone trabecular dysfunction, malnutrition, and increase of osteoclast activation [1]. Bone loss typically occurs below to level of the spine cord injury. Here we reported a case of vertebral osteoporosis occurs ten years after spine cord injury with very different radiological image. Osteoporosis has also reported by pathological study.

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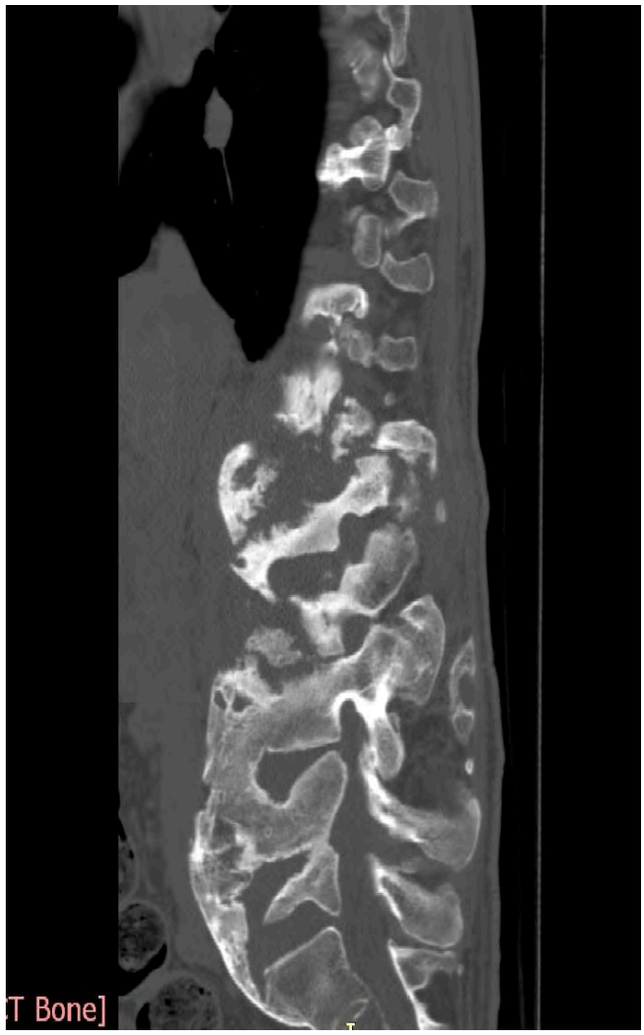

Figure 1. Vertebral bone tomography revealed diffuse vertebral bone loss and abnormal fusion after the injury level.

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Polyostotic Fibrous Dysplasia Case

Poliostotik Fibroz Displazi Olgusu

Polyostotic Fibrous Dysplasia Case

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Fibrous dysplasia(FD); is a benign slow-moving disease, in which the etiology is unknown, and abnormal fibroosseous replaces normal medullary bone tissue. Clinical fibrous dysplasia occurs in three forms: monostotic, polyostatic and McCune-Albright syndrome. The lightest and most common (70%) form is a monostotic form and it keeps single bone. Polyostotic form accounts for 30% of cases and affects a large number of bones. McCune-Albright syndrome is the most severe form with endocrine diseases, polyostotic FD and skin hyperpigmentation and seen very rare [1]. Patient history, clinical examination and conventional radiographic findings are usually sufficient to diagnose the FD. Diagnosis is based on radiological findings. Today CT scan and MRI are more preferred [2].
37-year-old male patient was evaluated at the chest disease clinic with left chest pain. He had a history of operationdue to fracture of the femur 8 years ago. There was swelling on the right maxillary mandibular and back and front left chest in physical examination, Radiological assessment was 1.rib expansion in the upper left zone on chest radiograph(Figure 1), cystic prominent expansive bone lesions in left 1. rib expansive bone lesions. Were detected in tomography(Figure 2). Cystic expansion was found in right proximal femur on pelvic radiograph(Figure 3). Maxillofacial tomography revealed hypodense soft tissue density in the right maxillary sinus (Figure 4-5). Multiple dıffuse heterogeneous osteoblastic activity increasements was revealed in bone scintigraphy (polyostotic fibrous dysplasia) (Figure 6). no significant abnormalities were In the laboratory blood count, routine biochemical analysis and in hormonal assays.

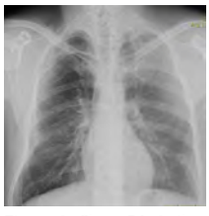


Figure 1. Chest PA: 1.rib expansion

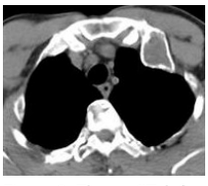


Figure 2. Thorax CT: left 1. rib expansive cystic bone lesions

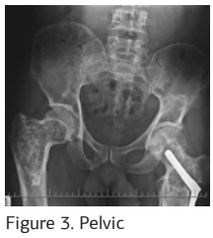
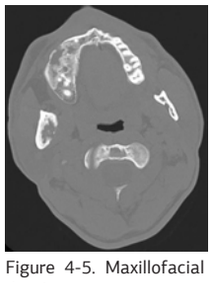


Figure 3. Pelvic radiograph: Cystic expansion right proximal femur



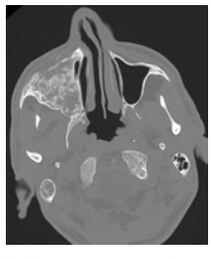


Figure 4-5. Maxillofacial CT: Hypodense soft tissue density

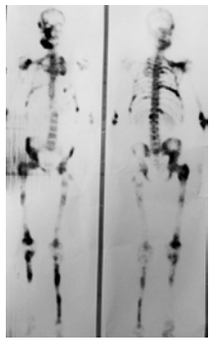


Figure 6. Bone scintigraphy: Multiple dıffuse heterogeneous osteoblastic activity

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A Very Rare Cause of Chronic Back Pain: L1 Hemivertebra

Kronik Bel Ağrısının Oldukça Nadir Bir Nedeni: L1 Hemivertebra

Chronic Back Pain

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A 49-year-old man presented to the hospital with many years history of back pain. He went to many hospitals during this period. None of the hospitals performed a radiologic examination. He used many non-steroidal anti-inflammatory drugs, but he did not heal. The neurologic examination was normal. A magnetic resonance imaging revealed L1 hemivertebra compression to the thecal sac and spinal cord (Fig. 1). After this diagnosis, the patient was operated and hemivertebra was excised. After one year follow up the patient did not have back pain.

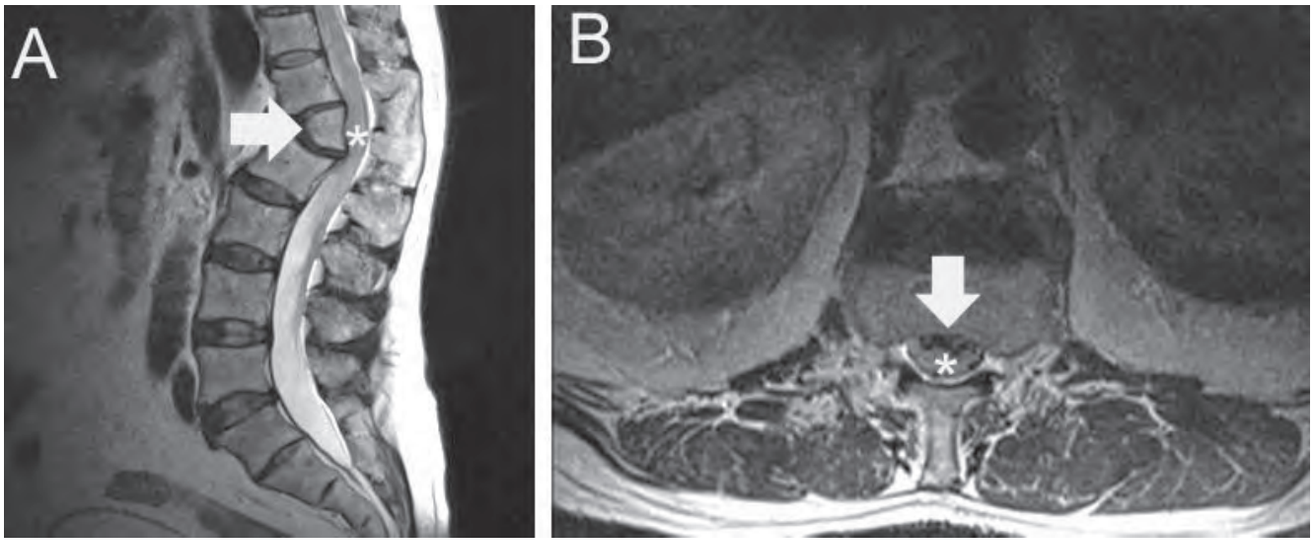

Figure 1. A T2 weighted sagittal (A) and axial (B) magnetic resonance images revealed L1 hemivertebra (arrow) compression to the thecal sac and spinal cord (asterisk).

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Tuberculosis Peritonitis-Related Ascites and Malign Ascites: How Can We Discrimate Them with A Simplier Way?

Tüberküloz Peritonitle İlişkili Asit ve Malign Asit: Ayırımını Basit Bir Yolla Nasıl Yapabiliriz?

Ascites

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To the editor:

Ascites is free fluid within the peritoneal cavity and is diagnosed by physical examination, ultrasonography as well as computerized tomography. Serum-ascites albumin gradient should always be calculated to detect the etiology of ascites. A gradient lower than 1.1 g per deciliter suggests that ascites is mostly related to peritoneal carcinomatosis (PC) and tuberculous peritonitis (TP) [1].

Tuberculosis is less frequently seen in developed countries, compared to less developed regions including the rural areas of the Middle East [2]. Two years ago, nearly 9 million new cases were detected worldwide, 0.023 % of whom were from the Turkey [3,4]. Extrapulmonary tuberculosis including TP is seen in 10 to 42% of patients and mimics many diseases such as PC [5].

In addition, TP, which mimics advanced ovarian cancer, should be included in the differential diagnosis of ascites particularly in female cases. Therefore, a high index of clinical suspicion is needed to reach a correct diagnosis.

Malignant ascites is a potential long-term complication of PC and the presence of malignancy-related ascites is considered to be a poor prognostic sign. The cardinal features of malignant ascites are positive cytology, elevated total protein concentrations and a low gradient serum-ascites albumin gradient which may also be seen in TP-related ascites [6].

Therefore, we aimed to determine the major and simple differences between TP-related ascites and PC-caused ascites.

In the current trial, a retrospective evaluation was performed using the clinical data from the hospital records of twenty-eight TP cases (23 female) and thirty-six PC cases (16 female cases 14 of whom were diagnosed with advanced ovarian cancer) over 17 years of age, who had been treated in the Gastroenterology Department of the hospital between January 2004 and October 2014

Laparoscopic biopsy in connection with pathological examination was conducted to diagnose all cases. Patients with hepatocellular carcinoma and hematologic malignancies were excluded from the study. All the patients were examined with CT of the abdomen and pelvis. Unguided or ultrasound-guided diagnostic paracentesis was performed in all cases. Patients were also evaluated in terms of laboratory findings. Data was entered into Microsoft Excel and analyzed using the chi-square test.

The mean age of PC cases was significantly higher than that of TP cases (60.75±16.45 versus 30.8±12.65 years; $p<0.001$). There was a female predominance in the TP group compared to the PC group (82% versus 43%; $p<0.001$). Compared with the PC group, the mean serum globulin level differed significantly and was found higher in the TP group (3.42±0.96 versus 4.38±1.59; $p<0.001$). We also demonstrated that the mean serum albumin level in the TP group was higher than that of the PC group (3.41±1.55 versus 2.87±0.67, $p<0.005$). Detailed data is presented in Table I.

In female patients, TP is frequently misdiagnosed as ovarian cancer due to the presence of exudative (low-gradient) ascites as well as higher levels of CA-125. Furthermore, biochemical features of serum and ascites have been investigated in recent years; however they have not been reported useful in discriminating between TP and PC [7,8].

In the current study, hyperglobulinemia, normoalbuminemia and being at a younger age are factors in favor of a TP diagnosis and the presented findings can help to distinguish between TP and PC cases.

In summary, peritoneal tuberculosis should be considered in the differential diagnosis of exudative ascites. A high level of clinical suspicion is required, especially in high-risk populations living in rural areas. This study may help to clarify the nature of ascites and to develop diagnostic strategies in the field of peritoneal diseases.

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Table I. The detailed data of cases

	Disease	n	mean±Standart deviation
Age(years)	TP	28	30.81±12.65 (17-90)
	PC	36	60,75±16,45 (31-88)
Serum albumin	TP	28	3.41±1.55(2.2-4.5)
	PC	36	2,87 ±0.67(1.56-4.16)
Serum Globulin	TP	28	4.38±1,59(2.6-6.4)
	PC	36	3,42±0.96(1.73-6.3)
Ascites- albumin	TP	28	2.68±1.14(1.5-3.7)
	PC	36	2.16 ±0.61(0.97-3.6)
Serum-ascites albumin gradient (SAAG)(mg/dl)	TP	28	0.73±0.61(1.39-3.76)
	PC	36	0,72±0,28 (0.08-1.06)

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The Mean Platelet Evaluation in Crimean Congo Hemorrhagic Fever

Kırım Kongo Kanamalı Ateşi Hastalarında Ortalama Trombosit Hacmi Değerlendirilmesi

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To the editor:

I read the article published by Ayse Inci with a great interest [1]. They assessed the platelet indices in Crimean Congo hemorrhagic fever (CCHF) patients. Mean platelet volume (MPV) values were higher in patients with CCHF than controls. I congratulate the author for this study which is successfully written. On the other hand, I want to make minor criticism about this study from methodological aspect.

The author screened complete blood counts of patients with CCHF retrospectively. However, they didn't mention about MPV measurement technique. Accurate measurements of platelet count and volume are important for diagnostic, therapeutic, and research purposes. The choice of anticoagulant (ethylenediaminetetraacetic acid (EDTA) or citrate), time interval of measurement, and temperature at which MPV is analyzed are important factors in MPV measurement. The time dependent swelling of platelets in samples anticoagulated with EDTA can result in an artefactual increase of MPV and misinterpretation of prothrombotic changes [2]. In actual daily practice, MPV measurements are performed at room temperature and temperature factor can be neglibible. However, the choice of anticoagulant and time interval of MPV measurement are important issue. MPV increases over time in EDTA-anticoagulated samples and this increase was shown to be proportional with the delay in time between sample collection and laboratory analysis. With impedance counting, the MPV increases over time as platelets swell in EDTA, with increases of 7.9% within 30 min having been reported and an overall increase of 13.4% over 24 h, although the majority of this increase occurs within the first 6 h [2]. Dastjerdi et al. recommended to measure MPV within 1 hour regardless of anticoagulant [3]. Lancé et al. reported that an optimal stability was detected in K2-EDTA after 120 minutes. It is widely accepted that platelet swelling in test tubes can be minimized by rapid processing of samples (within less than 1 h) [3]. For reliable MPV measurement, the potential influence of EDTA anticoagulant on the MPV must be carefully controlled by standardizing the time delay between sampling and analysis.

Secondly, there are significant associations of MPV with many cardiovascular risk factors like smoking, obesity, hypertension, diabetes mellitus, prediabetes, hyperlipidemia, metabolic syndrome, atrial fibrillation and fatty liver disease [4,5]. They didn't mention about these confounding factors. Obesity, smoking, hypertension, diabetes mellitus, hyperlipidemia metabolic syndrome, rhythm status and fatty liver disease increase MPV values [4,5]. It would have been useful if the authors had provided information about these factors.

MPV is universally available with routine blood counts by automated hemograms and a simple and easy method of assessing platelet function. In comparison to smaller ones, larger platelets have more granules, aggregate more rapidly with collagen, have higher thromboxane A2 level and express more glycoprotein Ib and IIb/IIIa receptors [2,4,5]. MPV can be affected by many cardiovascular risk factors. Because of that all confounding factors should be to taken into account. In addition, standardized methods must be used in MPV measurement [6].

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Final Diagnosis May Not Be Always as Expected: Acute Lomber Pain and Tenesmus Due to Hymen Imperfora

Son Tanı Her Zaman Beklenildiği Gibi Olmayabilir. Hymen İmperforatusa Bağlı Bel Ağrısı ve Tenezim

Hymen-Pain

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To the editor:

I read the article published by Kılıc C et all. with a great interest [1]. I congratulate them for this review which is successfully written. Additionally, I want to focus an important point based on structural differences of hymen; which I decided to mention through this article with an example of our clinical experiences.

A 17 years old female patient admitted with complaints of tenesmus within a prolonged time period and severe lomber pain radiating to the legs aggravated in last 3 days. There was no significant finding in her physical examination except mild pain on pelvic location by palpation. Magnetic resonance imaging revealed no significant finding on lomber axis which was performed with suspicion of any lomber pathologies. However, there was a heterogeneous intensity appearance located in uterus lying down the vagen (figure 1a). Thereon, the abdominal MRI revealed a heterogeneous lesion within fluid intensity located in uterus extending bilateral tuba and proximal part of vagen (figure 1b-c). In deepening her history, it islearned that she had never had menstrual bleeding and has never gone to any doctor because of this complaint as she was ashamed. With her gynecologic and radiological findings she was diagnosed with hymen imperforates and after surgery based on hymenotomy, patient made an uneventful recovery.

Hymen imperforate is a developmental anomaly with a prevalence of %0.014-0.1 in population [2]. Although it is diagnosed in pubertal period commonly, there are some cases which are reported inutero or newborn period; in literature [3]. Hymen that has grooved from mesodermal layer; perforates spontaneously by the late phase of embryogenesis; if this perforation does not occur it is called as hymen imperforates. It can be accompanied with some genitourinary anomalies such as renal agenesis [4]. Most common clinical presentation is urinary obstruction and MRI is a gold standard for diagnosis. Treatment is surgically hymenotomy which leads an uneventful recovery.

I want to remind insistently all readers to keep in mind hymen imperforates in young male patients with abdominal-lomber pain and/or any evidence of complaints of urinary obstruction, as a final diagnosis.

Best regards

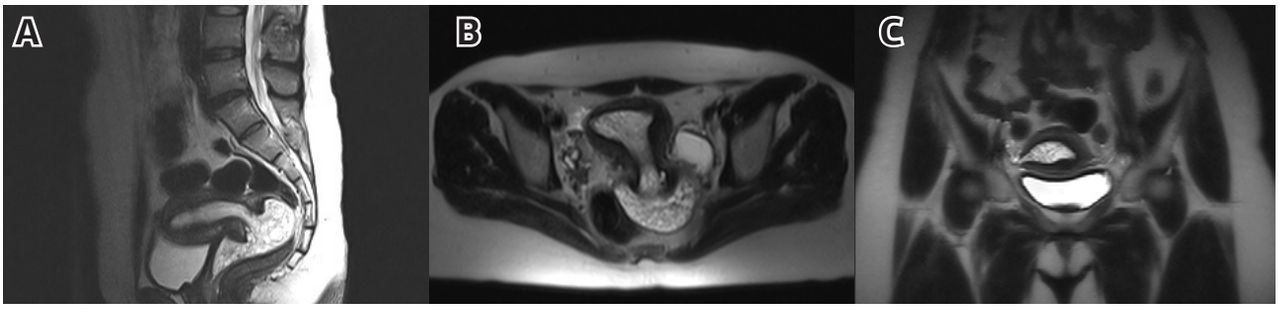

Figure 1. T2W sagittal (a) axial(b) and coronal (c) MR images. A heterogeneous lesion within fluid intensity located in uterus extending bilateral tuba and proximal part of vagen is seen.

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Does Local Allergy (Entopy) Exists in Asthyma?

Lokal Allerji Kavramı Astımda Söz Konusu Olabilir mi?

Local Allergy Asthma

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To the editor:

IgE produced by B cells after sensitization with allergens has a central role in allergic reactions and elevated serum IgE causes bronchial hyperactivity in atopic individuals.

Although elevated serum IgE is accepted as a sign of atopy, high total IgE level may accompany with non-allergic asthma and contribute to pathogenesis and severity of the disease independently from atopy [1]. Furthermore inflammatory cytokines and high-affinity IgE receptor expression have similar features on bronchial biopsies of patients with allergic and non-allergic asthma [2].It was suggested that most asthmatic patients may have an atopic component with increased production of IgE but these allergens cannot be identified yet.

Humanized monoclonal anti IgE antibody omalizumab reduce levels of circulating free IgE by binding to the constant region (ce3) of the IgE molecule, thus preventing free IgE from interacting with IgE receptors (FceRI and FceRII) and downregulates expression of IgE receptors (FceRI) on mast cells and basophils. The downregulation of FceRI expression is associated with a loss of sensitivity to allergen challenge and a reduction in mediator release .

Althougt indication of Omalizumab restricted with moderate to severe persistent asthma who have a positive skin test or in vitro reactivity to a perennial aeroallergens, some case reports shows that omalizumab can be effective in patients with high or even low IgE level non atopic severe asthma [3].

In recent years, evidence has emerged showing that increasing number of patients previously diagnosed with nonallergic or idiopathic rhinitis developed a local allergic response with nasal-specific IgE (sIgE) production and positive nasal allergen provocation test [4]. These findings suggest the presence of local allergic rhinitis (entopy) which could not be revealed by the classic skin tests. Local IgE production was also shown in bronchial mucosa of patients with atopic and non-atopic asthma .

Critisizm against the presence of local allergic reactions was supported by the detecting IgE and undetectable allergens; however, the data about local allergic reaction limited to nasal mucosa are increasing.

We think that local allergy (entopy) can also be seen in asthma patients with negative skin-prick test and serum specific IgE and these patients therefore may benefit from anti IgE treatment.

Non atopic patients with severe asthma having dramatic beneficial effect from omalizumab treatment show us that concept of local allergy (entopy) is worth discussing in asthma.

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New Clues with Omalizumab for Broncho-Cutaneous Hyperresposiveness

Omalizumab Havayolları ve Derinin Ortak Uyarılabilirliği Konusunda Yeni İp Uçları Verebilir

Omalizumab Broncho-Cutaneous Hyperresposiveness

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To the editor:

Chronic Inducible Urticarias (CIU) including mainly symptomatic dermographism (SD) are heterogen disorders which are commonly seen, generally not life threatening however negatively effecting quality of life. In most situations, the disease aetiology is unclear which has an important role in treatment failure. Although they are not commonly accepted, there are some hypothesis for the role of IgE in dermographic urticaria. It was showed that dermographism might be passively transferred to the skin of healthy individuals and it was attributed to an IgE-mediated immune reaction [1]. It was shown that the rate of dermographism is higher in atopic children as compared with healthy controls [2]. Increased IgE levels in patients with SD, compared to healthy control group may be associated with mediator release and this leads to an increase in receptor expression and can be a reason for increase in exitability of cutenous and bronchial tissues [3]. Bronchial asthma is characterized by inflammation of the lower respiratory tract leading to hyperactivity and a variable degree of reversible airway obstruction. Elevated serum IgE is a sign of atopy, and causes bronchial hyperactivity in atopic individuals. Omalizumab is a monoclonal IgG anti-IgE antibody, which has been approved for its use in severe asthma. Although the use of omalizumab has been reported to improve Dermatology Life Quality Index (DLQI) in patients with chronic urticaria, its effectiveness has not been widely studied in patients with physical urticaria.

We retrospectively retrieved our records and identified five patients who had used omalizumab due to allergic asthma and coexistent physical urticaria (symptomatic dermographism) which can not be controlled first and second generation high dose antihistaminic drugs. Patients received initial omalizumab treatment at a dose of 150 to 300 mg/month for 16 weeks. DLQI was measured before and after three months of omalizumab treatment [4]. There were 3 female and 2 male patients (mean age, 28.4 ± 10.1 years). All patients laboratory tests were in normal limit. One patient received omalizumab for 2 months and the remaining completed initial omalizumab treatment. In addition to allergic asthma and physical urticaria, one patient has contact dermatitis and one patient has atopic dermatitis. Allergy scin prick tests were positive for house dust mite mix in all patients. Life quality of all patients was prominantly improved and DLQI scores were observed to significantly decline following omalizumab treatment (17.8 ± 4.4 vs.4.8 ± 2.2; $p<0.05$)

It was shown that anti IgE treatment was effective in patients with sypmtomatic dermographism. [5] Although, the diagnosis of CIU was established by standartized provocation tests, probable triggering and/or associated factors (psychic factors, atopy, thyroid diseases, diabetes, menopause, existence or history of infectious and/or other systemic diseases, drug reaction etc) were not mentioned in previous studies.

Beneficial effectiveness of anti-IgE treatment in both allergic asthma and physical urticaria, as seen in our cases, shows that Ig E has a central role in the pathogenesis of both disorders, at least in some cases. Whether anti-IgE treatment is more effective in some types of urticaria or some condition associated with urticaria (atopic asthma etc) remains to be answered.

In conclusion, effectiveness of omalizumab treatment in both asthma and physical urticaria may be a clue for the presence of broncho-cutaneus hyperreactivity.

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Endometriosis: A Highly Unexpected Skin Lesion

Endometriozis: Nadir Bir Cilt Lezyonu

Endometriosis

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To the editor:

Endometriosis is the presence of functional endometrium in anywhere outside of uterin cavity. This clinical entity is relatively common, that 10-15% of fertile women and 6% of post-menopausal women are affected [1,2]. Cutaneous endometriosis is a form of endometriosis and it usually occurs in the incision scar, after gynecological surgeries, cesarean sections and episiotomies [3]. Cutaneous endometriosis is characterized with painful, bluish skin lesions that may bleed concordantly with menstrual cycle.

Cutaneous endometriosis is extremely rare in patients who haven't undergone any surgical procedures. We would like to share our clinical experience in this topic. A thirty-seven year-old female patient with no parity history admitted to our outpatient clinic because of supra-umbilical mass. Physical examination revealed a fascia defect with a 2 cm diameter, superior to umbilicus. There was also a brown raised skin lesion which is 2x1 cm in greatest diameters, on the left side near umbilicus. Patient underwent open hernia repair and the skin lesion was excised due to patient's request. After an unproblematic recovery patient was discharged. Histopathological examination of the skin revealed endometriosis (Figure 1,2). Patient's detailed gynecological history was questioned. Patient was married but failed to conceive a child, despite not using any methods of contraception. She was referred to the infertility clinic.

Cutaneous endometriosis is a rare clinical entity, especially in patients who haven't undergone any surgical procedure. Primary umbilical endometriosis was first described by Villar and it is known that its size may vary between several millimeters and centimeters. Although retrograde menstruation theory is reasonable, exact mechanism of etiology remains unclear.

Pyogenic granuloma, umbilical polyps, melanocytic nevus, seborrheic dermatitis, hemangiomas, and desmoid tumors are the frequently seen lesions of umbilicus [4,5]. Endometriosis should be kept in mind, especially when skin lesions which don't meet the criteria for any of these conditions are detected. Skin lesions of patients suffering from infertility should be examined carefully. Excision and histopathological examination of these lesions are necessary.

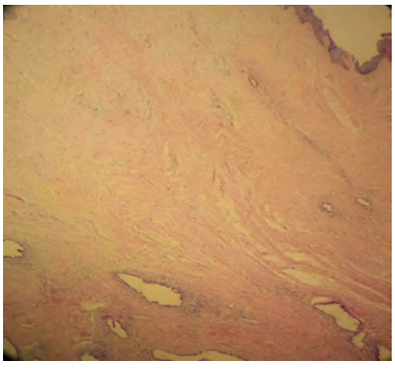

Figure 1. Endometrial glands and stroma localized under epidermis. (H&EX40)

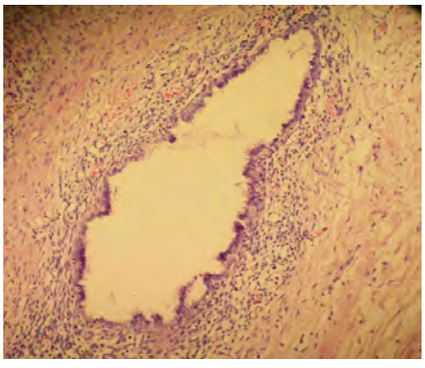

Figure 2. Stromal tissue surrounds the endometrial gland. (H&E X200)

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What is Acupuncture in Fact? Yin and Yang

Aslında Akupunktur Nedir? Yin ve Yang

Acupuncture, Yin and Yang

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To the editor:

Force and matter, particles and waves, motion and rest, existence and non-existence, these are some of the opposite or contradictory concepts which are transcended in modern physics. Of all these opposite pairs, the last seems to be the most fundamental, and yet, in atomic physics we have to go even beyond the concepts of existence and non-existence. At the same time, the transcending of the concepts of existence and non-existence is also one of the most puzzling aspects of Eastern mysticism [1]. Turkish philosopher, Biruni, Mevlana, Yunus Emre says, it is the active principle of the play, the total universe in action, where everything is dynamically connected with everything else. All this rhythm and changes starts with stimulus. What are we doing with acupuncture? We give stimulus our skin. While we sunk the needle into skin, nearly all of our body starts the rhythm. Acupuncture effects through changes in cellular activity, gene expression, enzymatic activity and organs homogeneity in multiple remote tissues. How could it be possible? If we evaluate the skin with embryological view, seen the epidermis develops from the surface ectoderm. The dermis, develops from the underlying mesenchyme [2]. Why important this condition. Because, interaction between mesenchyme and epithelium are classical examples of inductive interactions. These are instrumental for the development of lung, kidney, liver, tooth, and most glandular organs such as the mammary, salivary and pancreatic glands. In these organs, branched epithelial sheets arise from a small epithelial bud, which in response to signals from mesenchyme starts to grow, differentiate and branch [3]. Endodermal and mesodermal stimulation and their expressed genes and molecules are stimulate to organ develope. So, every organ in our body, content mesodermal and endodermal origin, that affects with each other. And these organs innervation belong to ectodermal origin, just like trilaminar germ disc connections in gestational third week [2]. In addition, while sunk the needle into skin, we starts a new consciously ectodermal-mesodermal communications. In other words, insert the needle into skin, starts a consciously trauma and inflammatory response. And, some group of polypeptide growth factors includes fibroblast growth factors which stimulate cell proliferation is mainly restricted to cells from mesodermal and neuroectodermal origin, including endothelial cells [4]. In other words, expressed factors stimulate mesodermal cells. While sunk the needle, stimulate whole organs and cells. Now, may be, understand the traditional Chinese medicine energy flow system and Yin and Yang. The Eastern philosophies are concerned with timeless mystical knowledge which lies beyond reasoning and cannot be adequately expressed in words. The relation of this knowledge with modern physics, embryology, developmental biology, teology and epigenetic sciences are.

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Cervical Ectopic Thymic Tissue with Parathyroid Elements Mimicking Papillary Carcinoma Metastasis

Papiller Karsinom Metastazını Taklit Eden Servikal Ektopik Timus Dokusu İçindeki Paratiroid Dokusu

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To the editor:

A 16 year-old female patient was presented with a cervical mass and pain. An ultrasound imaging detected hypoechoic nodules and calcifications at the right and left thyroid lobe. Preoperative blood examples were within the normal limits, except for autoantibodies (TgAb, TPOAb and TrAb). The nodule at the lower pole of the middle part of the right thyroid lobe was aspirated with a single pass using a 22-gauge needle. Fine needle aspiration biopsy performed on the left lesion revealed cellular, three-dimensional and papillary groups. Some of these groups showed follicular organization. The cells had voluminous, pleomorphic nuclei with rough chromatin. Pseudoinclusions were extensive and some nuclei had prominent nucleoli. Foamy macrophages and mature lymphocytes were sparsely seen in the background. The patient underwent bilateral total thyroidectomy. Thyroidectomy specimen was totally 14x9x4 cm in size. Both the macroscopic and the hematoxylin and eosin–stained sections of the right and left thyroid lobe showed a papillary thyroid microcarcinoma (PTMC) (Figure 1A). Nuclear features frequently observed were optically clear nuclei, nuclear grooves, chromatin clumping and nuclear crowding (Figure 1B). Additionally, sections of material sent from the patient revealed cervical ectopic thymus tissue. Biopsy of the lymph node revealed well-delineated servical thymic tissue composed of lobular lymphoepithelial components and interspersed Hassall's corpuscles. These findings were in support of ectopic thymus rather than lymph node. No histological features of lymph nodal tissue was present. Multiple sections studied from the lesion showed foci of parathyroid gland tissue consisting entirely of chief cells with eosinophilic cytoplasm that mimicking metastasis of papiller carcinoma (Figure 1C). We further performed immunohistochemical staining. Clusters of

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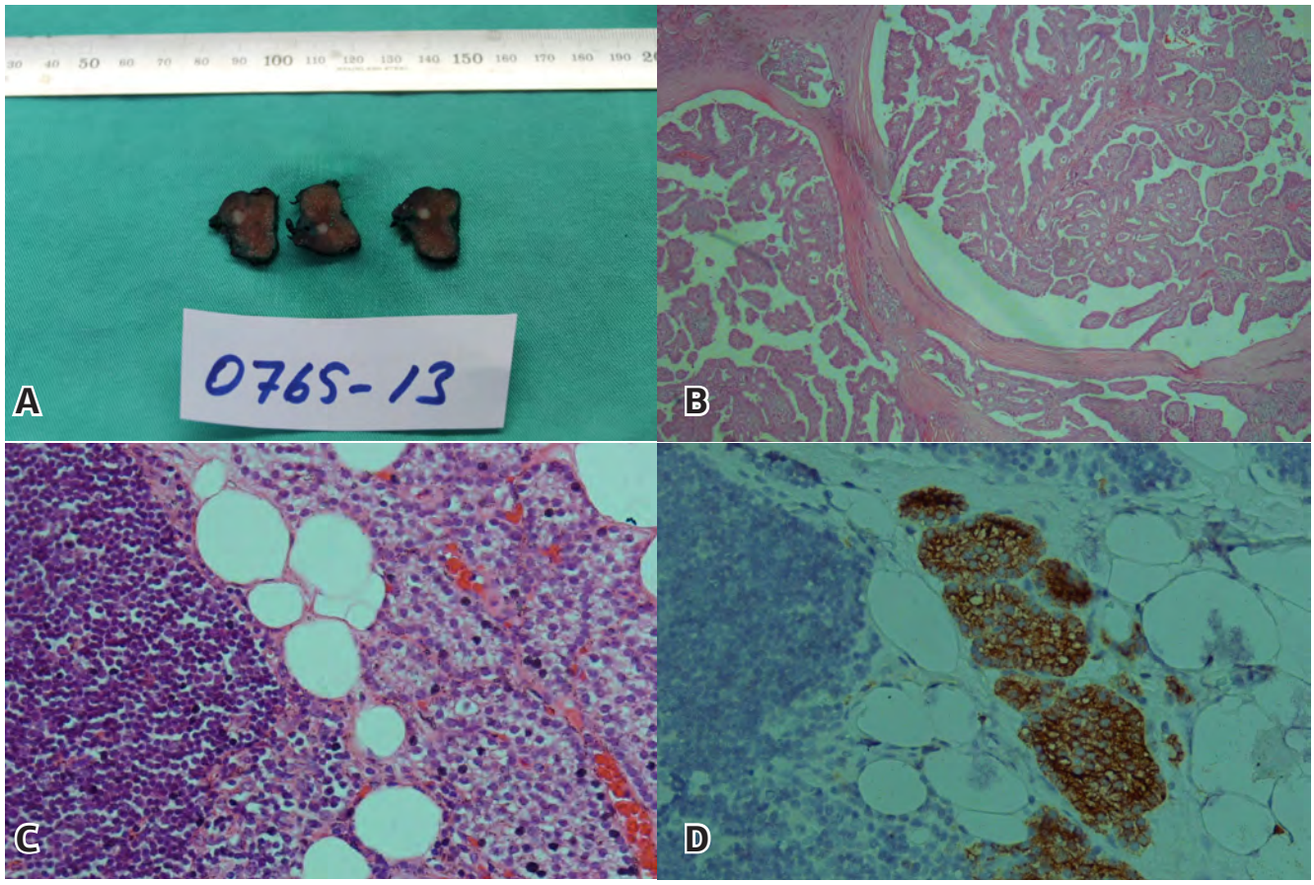

Figure 1. Surgical specimen showing solid nodule of whitish and homogeneous aspect. (A). Papillary thyroid carcinoma (PTC) is composed of delicate papillae lined by malignant cells (H&E, X100) (B). Parathyroid gland tissue consisting entirely of chief cells with eosinophilic cytoplasm that mimicking metastasis of papiller carcinoma (H&E, X400) (C). Clusters of uniform cuboidal epithelial chief cells showed strong and diffuse immunohistochemical staining for parathyroid hormone (parathyroid hormone, X400) (D).

uniform cuboidal epithelial chief cells showed strong and diffuse immunohistochemical staining for parathyroid hormone (Figure 1D). Based on these findings, the diagnosis for lymph nodal material of ectopic thymic tissue with parathyroid element was established. There were no postoperative complications.

Papillary thyroid microcarcinomas, as a specific subgroup of PTC an have a very favorable prognosis. Papillary microcarcinoma is increasing in incidence among young adults. They are regarded as low risk tumours [1, 2].

Cervical ectopic thymic tissue (CET) is an common embryological anomaly but CETs can not be diagnosed preoperatively. Congenital malformations of the neck may develop although with a low incidence, accounting for about 0.5 to 1% [3,4]. In conclusion, cervical ectopic thymic tissue with parathyroid elements is extremely rare. They can be misdiagnosed as metastasis if immunohistochemistry is not performed.

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A Case of Lung Cancer with Brain Metastases Diagnosed After Epileptic Seizure

Epileptik Nöbet Sonrası Tanısı Konulan Beyin Metastazlı Akciğer Kanseri Olgusu

Epileptic Seizure in Metastatic Brain Tumors

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To the editor:

"A case of lung cancer with brain metastases diagnosed after epileptic seizure" by M. Eroğlu et al. [1]

I have read the whole report with interest. The authors examined a 68-year-old male patient who had two consecutive epileptic seizures. He had a seizure for the first time in his life and he was otherwise normal both physically and mentally until a month ago when slight hemiparesis began on his right side. He has been a loyal and heavy smoker for forty years. To rule out any emergency condition, a cranial CT scan was obtained. Images discerned at least two lesions in the left frontal lobe. According to the no enhanced computerized tomography (NECT) scans of the patient, iso-dense masses at the gray-white matter interface with remarkable peritumoral edema were visualized. One of them was located in the precentral gyrus and was reminiscent of metastases. In such cases, cerebral abscess, malignant glioma, thromboembolic stroke, and demyelinating diseases should be considered in the initial differential diagnosis. The best imaging tool is likely a contrast enhanced magnetic resonance imaging study.

In adults, cerebral metastases are by far the most common intracranial tumors, and their incidence seems to be rising as systemic cancer therapies have improved, thereby extending patient's lives. The incidence of brain metastasis is difficult to determine with precision. It is apparently increasing in time and two issues might have an impact on that growing number: First, the combination of an increased incidence of lung cancer and melanoma, longer survival times of patients with cancer, and an aging population may have resulted in a primary increase in the incidence of cerebral metastases. Second, a more adequate representation of brain metastases in more recent neurosurgical studies, advances in neuroimaging techniques, and routine staging that assesses the CNS may have secondarily contributed to the growing number.

The primary tumor histology is very important in determining metastatic frequency. Indeed, more than 40% of patients with small cell lung cancer (SCLC) and lung adenocarcinoma have brain metastases at autopsy [2]. Their clinical presentation also may differ related to the area of metastases. Since metastases to the brain consist of a solid tumor mass without much infiltration in brain tissue, the volume of the usually round shaped and well-demarcated tumor tissue designates the clinical presentations if any. Almost half of the SCLC and lung adenocarcinomas and nearly all melanomas have already metastasized to the brain at the time of diagnosis of the primary tumor, therefore remote neurological findings should alert the physician to rule

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out any primary or secondary CNS lesions by imaging methods. Patients with minimal or no systemic diseases at the time of diagnosis of the metastasis and surgical treatment of the patients with multiple metastases up to 4, have a comparably better outcome than patients with low performance scales and multiple metastases exceeding four. High-dose corticosteroids constitute the initial treatment of patients with symptomatic brain metastases, with the objective of decreasing the edema that typically surrounds these tumors. If corticosteroid therapy helps to restore neurological function, that is another indicator that the patient would benefit from resection of the metastatic mass lesion. All in all, metastatic brain tumors may present with neurological symptoms mimicking stroke, intracranial hemorrhage, aneurysmal subarachnoid hemorrhage, traumatic brain injury, and some metabolic diseases as well as seizures, so the physician who is first to evaluate such a patient should consider all the clinical possibilities in the differential diagnosis and use the diagnostic imaging tools reasonably to manage such a case.

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Overview of the Nuclear Medicine Manuscipts Published in JCAM

JCAM'da Yayınlanan Nukleer Tıp Yayınlarına Genel Bakış

Nuclear Medicine Manuscripts

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To the editor:

Journal of Clinical and Analytical Medicine publishes manuscripts from every branch and area of medicine. The journal was being published three times in a year at the beginning, by increasing number of submitted manuscripts, now the journal is published six times in a year and contains higher number of manuscripts in every issue [1]. Day by day with the increasing number of articles, JCAM is on the way to becoming an international source journals. The rapid improvement in JCAM's getting bigger every day is very exciting. JCAM editors really spend very hard work to make JCAM to become one of the most exclusive journals of TURKEY and to protect its growth rate. This rate will be faster when we it is involved in SCI-E. For now, The journal is indexed in several international indexes like DOAJ, EMBASE, SCOPUS, and Index Copernicus along with the national indexes.

While the growing way, Nuclear Medicine manuscripts take a part in the context of the journal with increasing submission. The distribution of Nuclear Medicine manuscripts from the beginning to until today is summarized in Table 1. We wish that JCAM will be a mostly cited journal in SCI and also a favorite study group in most scientific platforms like congresses, meetings and panels in 2020 all over the world with acknowledgment of nuclear medicine scientific paper submission.

Table 1. The distribution of all Nuclear Medicine manuscripts accepted in Journal of Clinical and Analytical Medicine

Year	Subject	Article	Case Report
2011	Conventional Nuclear Medicine Technics	1 [2]	_
2012	PET/CT Imaging	1 [3]	1 [4]
2012	Conventional Nuclear Medicine Technics	1 [5]	_
2013	Conventional Nuclear Medicine Technics	1 [6]	_
2015	Conventional Nuclear Medicine Technics	2 [7, 8]	5 [9-13]

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Paclitaxel and Carboplatin in Elderly Patients with Advanced Non-Small Cell Lung Cancer

Yaşlı İleri Evre Küçük Hücreli Dışı Akciğer Kanserli Hastalarda Paklitaksel ve Karboplatin

Chemotherapy in Elderly Lung Cancer Patients

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To the editor:

We read the article named "Paclitaxel and Carboplatin in Elderly Patıents with Advanced Non-Small Cell Lung Cancer" by Ozdemir et al. with great interests [1]. We appreciate the authors for their study which is aimed to investigate the safety and tolerability of paclitaxel and carboplatin (PC) regimen in elderly patients with advanced non-small cell lung cancer (NSCLC). In our opinion, author pointed an interesting subject. The article contributes science, as well. The study has shown that PC regimen may be a good alternative for the treatment of elderly patients with advanced NSCLC. However, they mentioned that most of the patients have suffered some chemotherapy based side effect and the most frequent side effect observed was grade 3 or 4 neutropenia (57.7%) [1]. Overcome this issue, we would like to comment on some issues regarding the results of their study and draw further attention.

Lung Cancer is most common killer cancer and the second most common cancer in both men and women in the worldwide, has a limited 5-year survival of only 16 % [2]. Approximately half of the patients with lung cancer have metastatic disease when they are diagnosed. Thoracic radiotherapy using photon (X-ray) radiotherapy (XRT) is usually used for locally advanced NSCLC patients as a part of multimodality standard therapy combining with chemotherapy. However, toxicities and adverse effects such as radiation pneumonitis are very common and these effects limit the treatment efficacy [2]. In contrast to XRT, the protons are accelerated sufficiently to penetrate into tissue only to the depth of the cancer target, so that, proton beam therapy (PBT) might theoretically provide a superior dose distribution to target lesion and safer than XRT and systemic chemotherapy [3]. The clinical results of proton therapy in lung cancer patients reveal relatively low rates of toxicity and possible survival benefits [4]. But there is only six proton therapy center in the world for now. Accessibility is the limitation of the proton therapy. In our clinic, we apply this therapy and also have some ongoing project about potential benefits by using PET/CT imaging. We may affix the recent study that PBT is a safe and effective procedure, with promising oncological and functional results, and could be a valid alternative in selected cases. We celebrate Ozdemir et al and offer our respect for their valuable presentations.

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CT findings of Intramural Small Bowel Hematoma Secondary to use of Oral Anticoagulant Therapy

Antikoagulan Kullanımına Bağlı İncebarsak İntramural Hematom BT Bulguları

Anticoagulant Therapy and Intramural Small Bowel Hematoma and CT

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To the editor:

We have read the article with the number DOI: 10.4328/JCAM.176 under the title "Intramural Small Intestinal Hematoma caused by Warfarin Overdose (Case report)" [1] presented by İbrahim Yetim and colleagues in your journal. We wanted to mention a case diagnosed by clinical, laboratory and CT findings and treated non-surgically that might contribute to the valuable article. Oral anticoagulants are used for reasons like atrial fibrillation and venous thrombosis. One small intestinal hematoma was reported in 2500 cases using oral anticoagulants [2]. Ultrasonography and CT findings of intramural hematomas might imitate massive formations [3]. The patient history and INR levels are important for the diagnosis. The diagnosis can be confirmed by endoscopic biopsies [4]. In the treatment, hemostasis is obtained and the regression of the hematoma is monitored. Rarely, surgery is needed. In literature, surgery has been performed in cases where spontaneous regression does not occur or necrosis or peritonitis develops and if the diagnosis is unclear [4]. The 55 year old female case presented with a 3 day history of diffuse abdominal pain and no gas or stool passage. She had been using Coumadin after an ASD operation for atrial fibrillation. Physical examination revealed diffuse abdominal defense. The laboratory test results were high, APTT was 93.70 sec, PT was 111.30 sec and INR was 15.96. In the CT scans with and without contrast, thickening of the intestinal wall was observed in the pelvic region and the mean density was measured 50HU in the scan without contrast and 55HU in the contrasted scan [figure 1]. In the proximal of the intestines defined, diffuse dilatation consistent with ileus was identified. A minimal degree of free fluid was observed. The SMA and SMV were intact in the contrasted images. With consideration of the patient's INR values the findings were primarily regarded in favor of an intramural hematoma. Coumadin was stopped and a heparin infusion was started. After the INR levels and abdominal complaints resolved the Coumadin treatment was continued. In the CT scans obtained, regression of the intramural thickness and dilatation of the small intestines was noted [figure 2]. As a conclusion, the diagnosis of intramural hemorrhage can be made according to the clinical, laboratory and radiologic findings. In the following, INR levels and ultrasound and CT findings are important. Ultrasonography is noninvasive, so it may be first prefer in the following. The treatment can be stopping coumadin treatment and performing surgery if the situation does not resolve depending on the clinical picture.

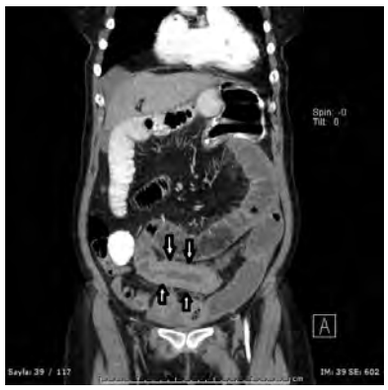

Figure 1. Thickening of the intestinal wall (arrows) was identified in the coronal CT images. The mean HU value was measured as 55. A diffuse dilatation consistent with ileus was identified proximally from the thickening of the wall.

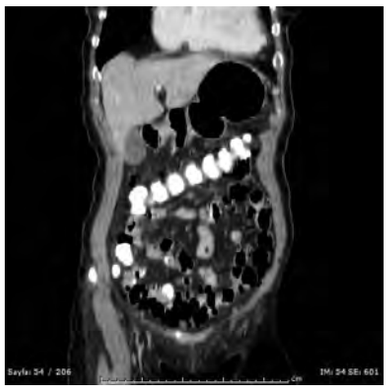

Figure 2. In the follow up CT scan, regression of the intramural thickening and dilatation of the small intestines was observed.

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Reflex Sympathetic Dystrophy in Children

Çocuklarda Refleks Sempatetik Distrofi

Reflex Sympathetic Dystrophy

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To the editor:

I have read the rare case report of Ayvaz et al named 'Reflex sympathetic dystrophy in children' curiously. Authors presented two girls with reflex sympathetic dystrophy which is rarely seen in childhood. Reflex sympathetic dystrophy is associated with pain, hyperalgesia, allodynia, functional loss, trophic and autonomic changes. Diagnosis is made clinically after rigorous elimination of other possible causes and three phase bone scintigraphy is useful imaging modality for the confirmation of reflex sympathetic dystrophy [1]. Radiography may be useful for the detection of subperiosteal bone resoption that is present in 69% of cases and MRI is useful for the imaging of bone and periarticular edema. In three phase bone scintigraphy increased perfusion in blood flow, hyperemia in affected bones, joints and soft tissues in blood pool phase and activity accumulation in the peripheries of affected bones in delayed images are seen [2]. Oliveira et al used bone scintigraphy as a decisive test for reflex sympathetic dystrophy in an adolescent girl [3]. A metaanalysis mentioned that three phase bone scintigraphy has higher sensitivity and negative predictive value than MRI and plain film radiography. The high sensitivity indicates that a patient with a positive bone scan has a high probability of reflex sympathetic dystrophy based on other clinical criteria [4]. Three phase bone scintigraphy seems to be the most effective imaging modality for diagnosis of reflex sympathetic dystrophy although in the case report of Ayvaz et al, case 1 had reflex sympathetic dystrophy with a normal bone scan. We celebrate Ayvaz et al and offer our respect for their valuable and rare case report.

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A Case of Severe Mercury Intoxication with Unknown Source

Bilinmeyen Kaynaktan Şiddetli Merkür İntoksikasyonun Olgusu

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To the editor:

With great interest we read an article by Gündüzöz et al. entitled "A Case of Severe Mercury Intoxication with Unknown Source" that is published in the JCAM July 2014, DOI: 10.4328/JCAM.2621[1]. In this article, the authors presented a 43 year-old male with non-specific symptoms such as severe taste disorder, metallic taste in mouth, weight loss and severe sleep disorder. Gündüzöz et al. reported that they could not find the origin of mercury exposure in their patient. Interestingly, they also reported that in physical examination of the patient's tongue, four amalgam fillings were observed. Unfortunately, these authors did not rule out the significant role of the exposure of dental amalgam restorations to common sources of electromagnetic fields (e.g. Wi-Fi, mobile phones and mobile base stations) in enhancing the release of mercury from dental amalgam fillings. Over the past several years, our lab at the Ionizing and Non-ionizing Radiation Protection Research Center (INIRPRC) has performed extensive experiments on the health effects of exposure of animal models and humans to different sources of electromagnetic fields such as cellular phones [2-9], mobile base stations [10], mobile phone jammers [11], laptop computers [12], radars [3], dentistry cavitrons [13] and MRI [14, 15].

In 2008, we published our first report on the role of exposure to MRI or microwave radiation emitted by mobile phones in enhancing the release of mercury from dental amalgam restoration[8]. On the other hand, we have recently studied the effects of stronger magnetic fields (1.5 T in our recent study vs. 0.25 T in our previous report) and found further evidence which support the adverse effect of MRI in increasing the release of mercury from dental amalgam fillings[16]. It should be noted that results obtained in microleakage studies also confirm that exposure of amalgam to electromagnetic fields accelerates the microleakage of amalgam [17, 18]. Moreover, we have shown that a few published papers which reported no increased release of mercury after MRI, may have some methodological flaws [19].

Therefore, we strongly believe that the role of rapidly increasing exposure to different sources of electromagnetic fields (e.g. Wi-Fi, mobile phones, mobile base stations) in increasing mercury release from dental amalgam restorations is simply ignored in the study of Gündüzöz et al. We hope that these comments will be useful in better understanding of the challenging issue of increased release of mercury from dental amalgam restoration after exposure to electromagnetic fields and obtaining more credible results in the future.

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Competing interests

The authors declare that they have no competing interests.

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Cervicofacial Purpura as Upper Gastrointestinal Endoscopy Complication

Üst Gastrointestinal Endoskopi Komplikasyonu Olarak Servikofasiyal Purpura

Red Face

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To the editor:

Facial purpura is a rare but sometimes a life-threatening case in which the first step to be carried out is the diagnosis and treatment of urgent conditions [1]. However, the facial purpura which develops as the complication of upper gastrointestinal endoscopy has a benign course and regresses usually in a week without any treatment [2-4].

A 55-year-old female patient was presented to our clinic with acute onset eruption on her face. From the history of the patient, it was learnt that she had undergone an upper gastrointestinal system endoscopy the day before because of her dyspeptic complaints and these eruption developed after this operation. It was also discovered that the patient had been given nothing except oral lidocaine spray and she had not been sedated. The patient stated that the reason of the eruption on her face and neck was her severe coughing and retching during the operation. There was no history of systemic disease, use of drug and alcohol. On dermatological examination, too many pin-head-sized red macules and subconjuctival haemorrhage were seen on the face, neck and oral mucosa (Figure 1) . No additional pathologies were found on the physical examination. Haematological reasons were excluded since the complete blood count, prothrombin time, and partial thromboplastin time were all within normal limits. The lesions healed completely without any treatment within five days.

Facial purpura may generally develop as a result of rheumatologic, dermatologic, infectious, haematologic, neoplastic and traumatic reasons [1]. Nevertheless, it may sometimes develop as a result of benign conditions which cause the increase of intrainthrathoracic and intraabdominal pressure such as coughing, vomiting, retching, giving birth, Valsalva maneuver, and physical exercise and this is called as “mask phenomenon” [5]. Other causes of facial purpura are epileptic seizures, severe respiratory tract infection and the cases observed in weight-lifters. First of all, the life threatening diseases should be etiologically excluded by clinicians in patients with facial purpura.

The facial purpura cases which develop as the complication of upper gastrointestinal endoscopy also exist in the literature [2-4]. In all the reported cases, topical anaesthesia was applied and because the gag reflex was not be able to be suppressed, petechia-purpura on the face and subconjuctival haemorrhage were observed. The severe coughing and retching of our patient during the upper gastrointestinal endoscopy which was carried out after topical anaesthesia resulted in intrathoracic pressure increase and the rupture of capillaries in the skin. We think that parenteral anaesthesia should be applied during endoscopy, it may decrease this complication by reducing the level of anxiety of patients and especially suppressing the gag reflex.

In conclusion, we think that in acute onset facial purpura cases after upper gastrointestinal endoscopy, it is important for clinicians to keep in this benign condition in mind to follow up patients.

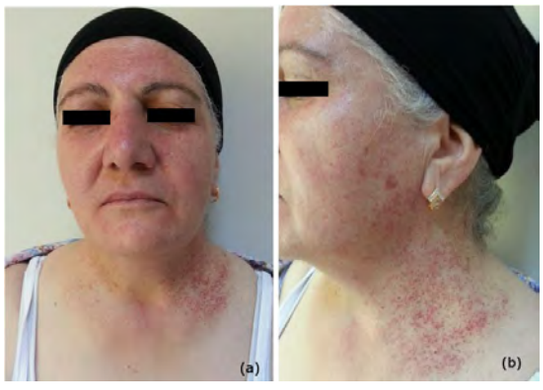

Figure 1. Multiple pin-head-sized red macules on the face and neck (a,b).

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Bilateral First Rib Stress Fractures in a Basketball Player

Basketbol Oyuncusunda Görülen Bilateral Birinci Kosta Stres Kırığı

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To the editor:

I read the article published by Aydoğdu et al. with great interest [1]. I congratulate them for this successfully written case report. I also want to focus on an important aspect of the case they presented, that the diagnosis in that case is likely a stress fracture. It is clear from the text and title that they did not make a diagnosis of stress fracture, despite a history of the patient having lifted heavy weights for three days. For this reason, I decided to contribute the example of our case, a patient with bilateral first rib old fractures.

A 26-year-old male was admitted with a complaint of coughing. There were no findings regarding coughing in his lung X-ray and thorax CT examinations, but we realised that his first ribs were broken. In taking further medical history, there was no history of trauma or any disease, but we learned that he was a basketball player. Thus, the bilateral first rib old fractures seen in our patient were diagnosed as stress fractures (Figure 1a-c).

Stress fractures are usually seen in lower limbs. Upper limb stress fractures are usually associated with upper limb–dominated sports such as tennis, swimming, golf, volleyball, and basketball [2]. Plain radiography frequently fails to show stress fractures during the symptomatic period. Therefore, it is difficult to diagnose. The most important fact in diagnosis is being familiar with this entity [3,4].

My purpose is to remind all readers to constantly keep in mind that fractures without a history of trauma could be stress fractures, especially in cases in which the patients are active in sports.

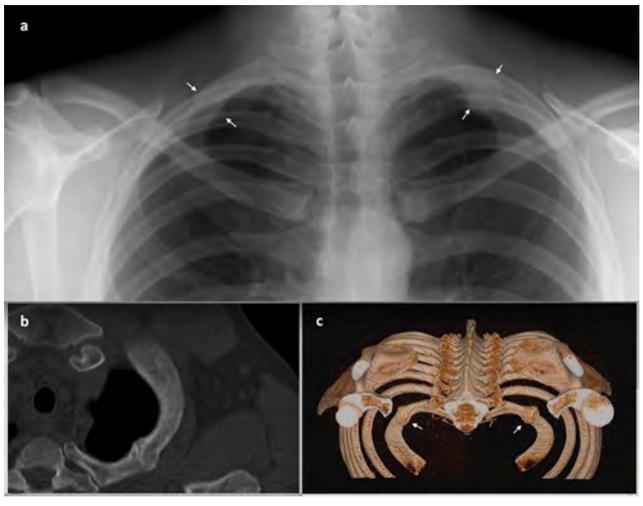

Figure 1. Posteroanterior lung radiography shows old fractures in bilateral first ribs (arrows)(a), Transverse oblique reformatted CT image demonstrates old fracture in left first rib(b). 3D image obtained with volume rendering technique shows the fractures clearly (arrows)(c).

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